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ABSTRACT

This report consists of a series of papers analyzing survey data from the 1987 National Postsecondary Student Aid Study (NPSAS) concerning the characteristics of both aided and nonaided students, as well as the manner in which students financed their postsecondary education. The following papers are presented: (1) "Paying for College: The Role of Financial Aid in Meeting the Costs of Undergraduate Education" (Rita J. Kirshstein); (2) "Who Attends Proprietary Schools? Findings from NPSAS" (Laura H. Salganik, Patricia A. Hopper); (3) "The Distribution of Discretionary Financial Aid and Stafford Loans" (Dan Sherman, Jon Cohen); and (4) "Descriptive Tables of the Characteristics of Undergraduate Students by Race and Ethnicity." The first paper uses three different definitions of net price to look at what students from different economic backgrounds paid to attend college. The second paper compares the characteristics of students attending proprietary schools to those attending similar programs in community colleges. The third paper identifies the significant factors related to the awarding of institutional aid, campus-based aid, and Stafford loans. The final paper presents data on personal characteristics, enrollment, and student aid by racial and ethnic categories. The report's appendix provides tables of statistical data developed from survey information. (GLR)

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RESEARCH FINDINGS FROM THE 1987 NATIONAL POSTSECONDARY STUDENT AID STUDY

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EXECUTIVE SUMMARY

The 1987 National Postsecondary Student Aid Study (NPSAS) is a nationally representative survey of students enrolled in postsecondary institutions during the fall of 1986. Data were collected from 43,176 students enrolled in about 1,000 institutions. In the fall of 1986, institutional data were collected from registration and financial aid records. In the spring of 1987, questionnaires were mailed to students and to a subsample of parents, and financial aid records were updated. NPSAS collected detailed information on the characteristics of both aided and nonaided students, as well as the manner in which they financed their postsecondary educations.

This report consists of a series of papers analyzing the survey data. The following is a summary of each of the papers.

Paying for College: The Role of Financial Aid in Meeting the Costs of Undergraduate Education

Throughout the 1980s, tuitions in all types of higher education institutions grew considerably faster than both inflation and median family income. While financial aid also increased during this period, its growth did not offset the escalation in tuitions. Furthermore, loans as a form of financial aid increased faster than either grants or work study.

This paper focuses on what undergraduate students from different economic backgrounds actually paid to attend college in the 1986-87 academic year after financial aid awards were considered. Three different definitions of "net price" were used to compare the impact of different types of financial aid. These definitions are:

- **COLLEGE COSTS - GRANTS;**
- **COLLEGE COSTS - (GRANTS + 1/2 LOANS); and**
- **COLLEGE COSTS - (GRANTS + LOANS + WORK STUDY).**

Each of these net price definitions results in a different concept of financial aid. They range from a definition which only includes a pure subsidy, grants, to a definition which is equivalent to the notion of "current price," or the immediate money needed to pay for college after all financial aid -- grants, loans, and work study -- is deducted from total college costs. Findings using these three definitions result in interesting differences, particularly for students in higher cost schools.

Major findings from our analyses include:

- Financial aid resulted in substantial reductions in the cost of postsecondary education for lower-income students.
- Lower-income students relied heavily on loans and work study to supplement grants and further reduce their educational costs; and
- Financial aid played a particularly critical role in reducing the premium paid by lower-income students to attend higher priced private colleges and universities.

Further findings reveal differences in the overall contribution of Federal aid to students who attended public and private higher educational institutions. Federal financial aid awards are the primary contributor to the total financial aid package for lower-income students enrolled in public four-year colleges and universities. In the private sector, Federal aid is a smaller proportion of total costs than is aid from other sources, particularly institutional aid. Even students from higher income backgrounds appear to benefit from institutional aid awards.

Who Attends Proprietary Schools? Findings From NPSAS

Two very different types of educational institutions offer postsecondary vocational training: proprietary schools and less-than-four-year public institutions. Less-than-four-year public schools, including community colleges and public vocational schools, receive considerable support through state subsidies and have relatively low student tuition. Proprietary schools, on the other hand, are for-profit businesses whose major revenue source is student tuition. The vast majority of their students receive Federal financial aid, including student loans that must be repaid even if the students do not complete their training. In spite of the high costs and the need to take out loans to pay for their education, growing numbers of students continue to enroll in proprietary schools.

This expansion has important policy implications at the Federal level because it has resulted in a large increase in the percentage of Pell Grant and Stafford Loan dollars supporting proprietary school students. In 1988-89, 34.4 percent of Stafford Loan borrowers attended proprietary schools and received 29.9 percent of the loan dollars. Clearly, Federal financial aid has made proprietary schools accessible to low-income students who might not otherwise have been able to afford the tuition.

The purpose of this study is to analyze the characteristics of full-time proprietary students and to compare them to the characteristics of students enrolled in similar programs in less-than-four-year public schools. Major findings from the study indicate that:

- When comparisons were made between programs of similar duration, the characteristics of proprietary and public school students were similar. Shorter programs (defined as being less than two years) attracted students who were more likely to be below the poverty line, independent, older, and not to have completed

high school regardless of whether the institution was public or proprietary. However, since 70 percent of proprietary school students were enrolled in shorter programs compared to only 14 percent of public school students, overall proprietary students were more likely to fit the above profile.

- Even after controlling for program duration, black students were more likely and Asian students were less likely than white students to enroll in proprietary schools. The chances of Hispanic students enrolling in proprietary schools were similar to those of white students.

- Business-related courses had the largest share of enrollment in both types of schools. However, proprietary school students were more likely to be enrolled in administrative support and secretarial programs, while students in public schools were enrolled in business and management, accounting, and banking and finance.

- Proprietary school students received Pell Grants and Guaranteed Student Loans at a much higher rate than public school students. These differences, some of which are undoubtedly related to the fact that tuition is considerably higher at proprietary schools, persisted regardless of whether the students' family incomes were above or below the poverty level. Students' reasons for selecting the schools they attended suggest that availability of aid attracts students to proprietary schools, while lower costs attract them to public schools.

The Distribution of Discretionary Financial Aid and Stafford Loans

In analyzing the distribution of student aid, a relevant consideration is whether institutions have discretion over the type of aid in question. For those types of aid that the student brings to the institution, e.g., Pell Grants, private scholarships, and the like, it is the funding source who determines who receives the aid and how much they receive. However, for those types of aid over which institutions do have discretion, an important issue is the factors institutions consider in distributing this aid. The purpose of this report is to investigate the relative importance placed by institutions on various factors in the distribution of discretionary aid.

Discretionary aid is defined in this report to include the three Federal campus-based aid programs, Supplemental Education Opportunity Grants (SEOG), College Work Study (CWS), Perkins Loans, and institutional aid. We also analyzed Stafford Loans because, while a student makes the decision on whether to borrow, this decision will depend on the extent to which the institution meets a student's need through discretionary aid sources.

To examine the award of discretionary and Stafford aid, a multivariate model is estimated relating the amount of each of these sources of aid to financial need and other student characteristics, such as grade point average, race, gender, and dependency status. Separate equations are estimated for each aid source for both four-year public and private institutions, and the data set is restricted to full-time, full-year aided undergraduates.

The following findings emerge from the analysis regarding the effect of three key factors on institutions' distribution of discretionary aid and Stafford Loans:

- Financial Need. Financial need was a major consideration in how institutions distributed discretionary aid and Stafford Loans. As financial need increased, so did both the probability of receiving aid and the amount of aid received. This result was found for all five sources of aid considered and in both four-year public and private institutions.

- Grade Point Average. In distributing their own funds, institutions clearly were interested in attracting and retaining higher ability students. For a given level of need, students with higher GPAs were both more likely to receive institutional aid and to receive larger amounts. For example, other things being equal, an aided student at a four-year private institution with a 1.0 GPA had a 46 percent chance of receiving institutional aid compared to a 70 percent chance for a student with a 4.0 GPA. The student with the 4.0 GPA received $1,300 more in aid than the student with the 1.0 GPA. Conversely, GPA was negatively related to the receipt of a Stafford loan. Other things being equal, an aided student at a four-year private institution with a 1.0 GPA had an 85 percent chance of receiving a Stafford loan compared to a 64 percent chance for a student with a 4.0 GPA.

- Race. Non-white students were more likely to receive SEOG and CWS awards than were whites, holding other factors, including need, constant. On the other hand, non-whites were less likely to participate in the Stafford Loan program. There was no difference in the receipt of institutional aid between white and non-white students.

ACKNOWLEDGEMENTS

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LIST OF PAPERS

PAYING FOR COLLEGE: THE ROLE OF FINANCIAL AID
IN MEETING THE COSTS OF UNDERGRADUATE EDUCATION

WHO ATTENDS PROPRIETARY SCHOOLS?
FINDINGS FROM NPSAS

THE DISTRIBUTION OF DISCRETIONARY FINANCIAL AID
AND STAFFORD LOANS

DESCRIPTIVE TABLES OF THE CHARACTERISTICS
OF UNDERGRADUATE STUDENTS BY RACE AND ETHNICITY

PAYING FOR COLLEGE:

THE ROLE OF FINANCIAL AID IN MEETING THE COSTS OF UNDERGRADUATE EDUCATION

Rita J. Kirshstein

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PAYING FOR COLLEGE:

THE ROLE OF FINANCIAL AID IN MEETING THE COSTS OF UNDERGRADUATE EDUCATION

Introduction

Throughout the twentieth century, American postsecondary education has expanded to make itself accessible to any and all students who qualify. As a result, enrollments of lower- and middle-income students have increased considerably in the last 20 years. Recently, however, the cost of attending a postsecondary institution has risen to such an extent that the continuing affordability of higher education for lower- and middle-income students is being questioned.

As tuitions have risen, so has the importance of financial aid. During the 1990-91 academic year, students received approximately $28 billion in aid. The Federal government provided 75 percent of this aid, or $21 billion, and states and institutions provided approximately 7 billion (The College Board, 1991). Financial aid has thus become a major expenditure not only for the Federal government but also for the states and individual institutions.

This paper focuses on the extent to which financial aid reduces college costs. First -- tuition, income, and financial aid trends in the 1980s are examined to provide an overview of the much publicized changes in the past decade. Second -- a detailed description of what students actually pay to attend different types of postsecondary institutions is presented for academic year 1986-87.

Using data from the National Postsecondary Student Aid Study (NPSAS), detailed analyses of the price of attending college after deducting student aid awards are then presented. This "net price" is contrasted to the "sticker price," tuition costs before deducting financial aid. Particular attention is paid to differences in the costs of higher education for students from different economic backgrounds.

The analyses in this report address a number of different and sometimes competing policy areas. Access to higher education for all students who qualify is of primary concern to policymakers, yet rapidly increasing costs have raised questions about the feasibility of this goal. Are students and their families going to be able to afford higher education? Are the billions of dollars being spent a year by the Federal government enabling students to obtain the higher education of their choice? Are resources available to allow qualified low-income students to attend costly private colleges? What is happening to middle-income students?

At the same time that the public is concerned about the impact of rising college costs on students and families, there are also concerns about the increasing costs to the Federal government of providing financial aid and administering the programs. Currently, the Federal government provides financial aid to students through a number of different programs. Grants, loans, and work study are all offered to students attending all types of postsecondary institutions. In recent years, Federal aid has shifted from grants to loans. While it is generally believed that loans can be provided at one-third the cost of grants (Mortenson, 1990), other issues must also be considered. These include the cost of administering the loans, the default rates of students who borrow and the willingness of students to go into increasingly higher debt to obtain a postsecondary education. Thus, it is important to also examine what types of aid different students in different types of schools receive. To what extent do loans assist students in reducing the cost of postsecondary education? Are loans disproportionately awarded to lower-income students? Are loans disproportionately awarded to students enrolled in proprietary schools?

In focusing on what students actually pay to attend college, this paper addresses a number of policy questions that are particularly important for the 1990s. As tuitions continue to climb and a recessionary economy stretches family resources, financial aid will become even more important to a broad range of students.

Trends in Tuitions, Financial Aid, Family Income, and Enrollments

The affordability of a postsecondary education hinges on a number of factors. These include the tuitions which colleges charge students, the financial resources that families have to pay for postsecondary education, and the availability of financial aid to help offset the costs of postsecondary education. Tables 1A and 1B present data on tuitions, median family incomes, and financial aid from 1980-81 to 1987-88 in both current and constant 1987 dollars. The discussion that follows focuses on current dollar comparisons.

As has been well documented, tuitions in all types of institutions -- public and private; two-year, four-year, and universities--increased considerably faster than inflation throughout the 1980s. With the exception of two-year colleges, tuitions increased faster in current dollar terms for schools in the private sector than for those in the public sector, and universities' tuitions increased the fastest of any type of institution in both sectors.

Tuitions across the board also rose considerably faster than median family income in the 1980s. Whereas this measure of income increased by 47 percent during this time period, the smallest tuition increase in any type of institution was 62 percent, and that was for private two-year colleges which enroll only two percent of all students in colleges and universities. Indeed, tuitions for private universities and four-year colleges increased at twice the rate of median family income.

Did financial aid increase in the 1980s at a rate to compensate for the fact that tuitions increased faster than family incomes? Overall, the answer is "no;" student aid did not keep up with tuition. Or put alternatively, tuition growth was not held down to the increase in student aid. Grant aid increased by 20 percent and work study aid actually declined over the entire period by four percent. Loan aid rose at the fastest pace, 79 percent. And overall, total aid grew by 43 percent. Thus, all types of financial aid increased slower than tuitions in public and private

TABLE 1A

Trends in Tuition, Student Aid, and Median Family Income: 1980-1988

(Current Dollars)

YEAR	Average Tuition and Fees: PUBLIC Univ.	PUBLIC 4-yr	PUBLIC 2-yr	PRIVATE Univ.	PRIVATE 4-yr	PRIVATE 2-yr	Financial Aid (In Millions): Grants	Loans	WS	Total Aid	Median Family Income
1980-81	915	721	385	4,275	3,390	2,413	9,615	6,958	660	17,233	21,832
1981-82	1,042	813	432	4,887	3,855	2,697	9,592	7,911	624	18,127	22,387
1982-83	1,164	936	473	5,583	4,329	3,008	8,790	7,510	615	16,915	23,438
1983-84	1,284	1,052	528	6,217	4,726	3,099	8,930	8,521	683	18,134	24,678
1984-85	1,386	1,117	584	6,843	5,135	3,485	9,356	9,612	645	19,613	26,453
1985-86	1,536	1,157	641	7,374	5,641	3,672	10,300	9,914	656	20,870	28,323
1986-87	1,651	1,248	660	8,118	6,171	3,684	10,614	10,178	629	21,421	29,459
1987-88	1,750	1,320	690	8,770	6,670	3,910	11,495	12,488	635	24,618	30,853
% CHANGE: 1980-81 to 1987-88	91%	83%	79%	105%	97%	62%	20%	79%	-4%	43%	47%

TABLE 1B

Trends in Tuition, Student Aid, and Median Family Income: 1980-1988

(1987 Dollars)

YEAR	Average Tuition and Fees: PUBLIC Univ.	PUBLIC 4-yr	PUBLIC 2-yr	PRIVATE Univ.	PRIVATE 4-yr	PRIVATE 2-yr	Financial Aid (In Millions): Grants	Loans	WS	Total Aid	Median Family Income
1980-81	1,224	964	515	5,717	4,533	3,227	12,858	9,305	883	23,045	28,126
1981-82	1,283	1,001	532	6,016	4,745	3,320	11,807	9,738	768	22,313	27,557
1982-83	1,374	1,105	558	6,589	5,109	3,550	10,374	8,864	726	19,964	27,663
1983-84	1,461	1,197	601	7,076	5,379	3,527	10,163	9,698	777	20,639	28,087
1984-85	1,518	1,223	640	7,494	5,624	3,817	10,246	10,527	706	21,480	28,971
1985-86	1,635	1,232	682	7,850	6,005	3,909	10,965	10,554	698	22,217	30,151
1986-87	1,719	1,300	687	8,454	6,427	3,837	11,054	10,600	655	22,308	30,679
1987-88	1,750	1,320	690	8,770	6,670	3,910	11,495	12,488	635	24,618	30,853
% CHANGE: 1980-81 to 1987-88	43%	37%	34%	53%	47%	21%	-11%	34%	-28%	7%	10%

SOURCE: NCES, Digest of Education Statistics, 1989; The College Board, Trends in Student Aid: 1980-1989.

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four-year colleges and universities, and grants and work study also increased slower than tuitions in two-year schools. Figure 1 summarizes these different trends by comparing increases in tuition to growth in financial aid and median family income.

The differing rates at which grant and loan aid increased can be viewed in another way. Whereas in 1980, grants consisted of 56 percent of all financial aid, by 1987, grants comprised 47 percent of all aid. Loans as a proportion of all aid dollars increased from 40 percent to 51 percent during this time period. These changes are presented in Figure 2.

The increase in loan aid relative to grants has raised a number of policy questions regarding the impact of loans on both the students who borrow money to finance their educations and the lenders who provide the loans. Mortenson (1990), for example, links enrollment declines of lower-income students in the 1980s to loans replacing grants as a predominant form of financial aid. People from lower-income families also appear to be less willing to borrow money for higher education than are people from higher-income families (Lieberman Research, 1988). And default rates tend to be highest among lower-income borrowers (Dynarski, 1990). All of these findings raise questions about the substitutability of loans for grants. On the other hand, loans may be an efficient way of maximizing aid given limited resources.

Not only were there changes in the form of financial aid awarded to students in the 1980s, but there were also changes in whether the source of aid was the Federal government, state government, or the postsecondary institution itself. Whereas the Federal share of all financial aid was 83 percent in 1980-81, its share of all aid dropped to 75 percent by the 1987-88 academic year. Institutional aid grew by seven percentage points during this period, from 12 percent of all aid to 19 percent. A study released by the National Institute of Independent Colleges and Universities (1990) reports that private institutions provided $2.33 billion from institutional resources to undergraduates in the 1987-88 academic year. Between 1980-81 and 1987-88,

FIGURE 1
Tuition Increased Faster Than Financial Aid and Family Income in the 1980s

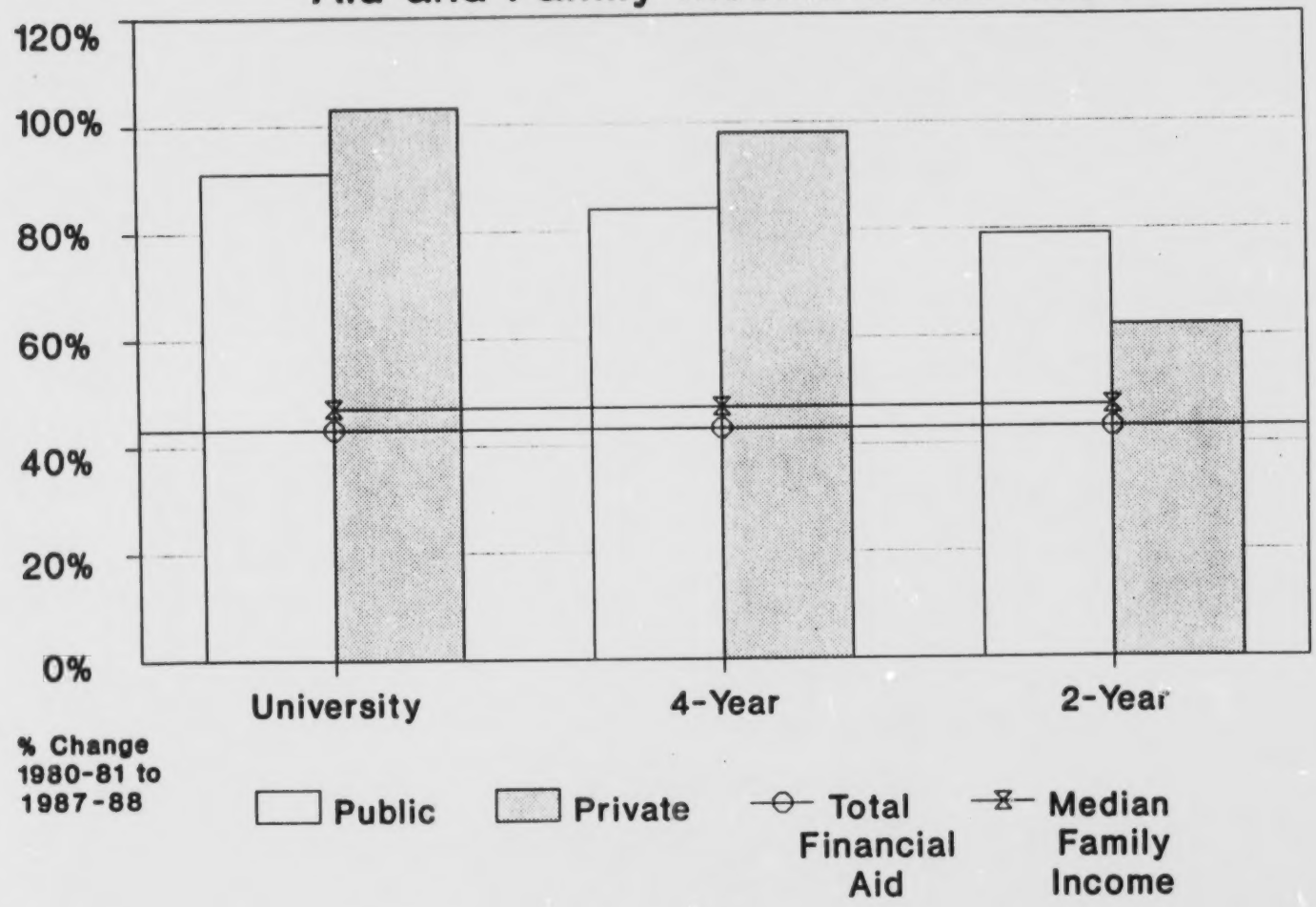
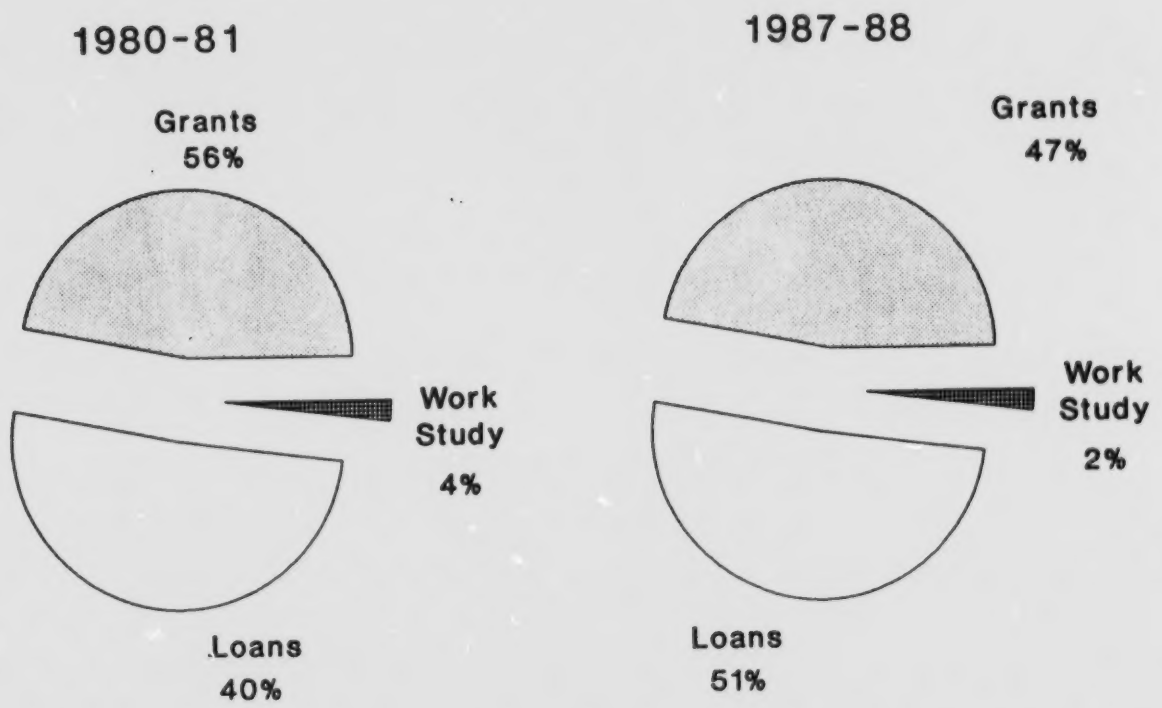


FIGURE 2
Loans Increased as a Share of Financial Aid in the 1980s



institutionally provided financial aid grew by 87 percent in current dollar terms. And in 1987-88, 85 percent of this aid was in the form of grants and only 5 percent was in the form of loans. These changes among private colleges and universities point to the importance of examining financial aid awards and net price issues separately for each sector.

Several recent reports have attempted to relate changes in financial aid patterns to changes in tuitions by developing a measure of "net price." Schenet (1988), for example, combined aggregate data on average costs of attendance and total aid awarded per full-time equivalent student. Her findings indicate that the average cost of attendance declined in real terms by 8 percent between 1970 and 1980, and increased by 26 percent between 1980 and 1986. However, the average net price declined 48 percent during the earlier time period **and increased 104 percent during the first six years of the 1980s.**

Similarly, a Congressional Budget Office report (1988) used three definitions of net price to compare changes in the sticker price to changes in the price students pay after aid is awarded. One definition of net price included all grants, as well as the face value of all loans and all wages from work study; another included all grants and one half the face value of loans and work study; and the third definition included only grants. Regardless of the definition used, the average net price fell considerably in the first half of the 1970s. Over the next five years, net price remained steady only if all forms of aid were subtracted at face value and increased under the other two definitions. In the 1980s, however, net prices rose sharply regardless of which definition was used.

While both of these efforts provide useful data on aggregate trends, these overall averages mask variations in college costs and net price across the many diverse postsecondary institutions in the United States. Similarly, these data do not capture differences in the net prices paid by students from different economic backgrounds and with different financial need. Since financial aid based on the individual need of the student is the predominant form of aid awarded, one

would expect lower-income students to pay less than higher-income students who are enrolled in institutions with similar overall attendance costs.

One of the few analyses at the student level which attempts both to determine if net prices have changed over time and to examine these trends for students from different economic backgrounds used data from the American Freshmen Survey (Bradburd, et al., 1991). For students in all income groups and for students enrolled in both public and private institutions, net price increased throughout the 1980s (between 1980 and 1985). The net price for lower-income students was considerably less than it was for middle- and higher-income students. However, net price increases for lower-income students were identical to the net price increases for the most affluent students in the 1980s -- 42 percent. Thus, it appears that lower-income students were not protected from the general increase in college costs.

The trends examined in this section of the report raise questions about the affordability of college. Tuitions have increased faster than inflation and median family incomes, and financial aid has not kept pace with these tuition increases. Furthermore, loans as a form of financial aid have increased faster than either grants or work study. The analyses presented below examine how these trends affect what students pay to attend college.

Methodology

The 1987 National Postsecondary Student Aid Study provides a unique opportunity to examine the extent to which financial aid reduces the cost of college for students and their families.[1] This report examines the relationship between the prices charged students to attend

[1]NPSAS sampled from all students enrolled in postsecondary institutions in the fall of 1986. Students attending proprietary schools were included, as were graduate and professional students. In addition, data were collected from institutional registration and student financial aid records, and a separate survey was conducted of a subsample of parents of students who were in the NPSAS sample. The final NPSAS sample consisted of 43,176 students.

college and what students actually pay. The report focuses exclusively on full-time, full-year, dependent undergraduates in order to make comparisons within a relatively homogeneous population.

To understand this relationship, it is important to understand the following equation:

WHAT STUDENTS PAY ("NET PRICE") = COLLEGE COSTS - FINANCIAL AID

This seemingly simple equation becomes increasingly complex when considering the composition of each of the elements in the formula. What follows is a brief discussion of these elements.

College Costs

A number of different costs are incurred by students attending college. These include:

- tuition charged by the institution ("sticker price");
- fees for services which the college might provide;
- room and board;
- books, supplies, and other education-related costs; and
- miscellaneous expenses such as those for transportation, child care, etc.

These expenses are those that are typically used to calculate "cost of attendance" in standard financial aid formulas and were used in our calculations of college costs.

Financial Aid

Financial aid awards assist students in meeting college costs. Grants, loans, and work study all lower the student's cost of attendance, but their impacts vary.

Grants awarded to students are the purest subsidy; they do not have to be repaid and generally reduce the cost of college by the amount awarded. Loans, on the other hand, must be repaid. However, interest rates on education loans are often lower than those in the open market, they generally do not have to be repaid until a student's education is completed or terminated, and these loans are provided to individuals who usually do not have a credit history.

Thus, loans are considered to be a type of subsidy, even though they must be repaid. Work study provides jobs to students who need financial assistance.

These different types of aid have major implications for students and their families. When determining how much a student actually pays for college, the different types of aid must be considered differently. Miller and Hexter (1985), for example, use the notion of "real cost to the family" of college attendance and only subtract the value of grants from college costs. The Congressional Budget Office report (1988) cited earlier considered three different definitions of aid when examining net price. Each formulation considered subsidy values differently.

In this report, we too use three definitions of aid to determine net price but our definitions differ slightly from those used by the Congressional Budget Office by excluding work study from the second definition. Our three definitions are:

(1) **GRANTS ONLY**

(2) **GRANTS + 1/2 LOANS**

(3) **GRANTS + LOANS + WORK STUDY**

Net Price

Each of the financial aid definitions results in a different concept of net price. The first definition, "grants only," is consistent with the concept put forth by Miller and Hexter (1985) by only including aid that is given directly to the student. Nothing needs to be repaid and no work is required in exchange for financial assistance. The second concept, "grants + 1/2 loans" follows the basic tradition of Hauptman (1985), the Congressional Budget Office (1988), Bosworth *et al.* (1987), and Bradburd *et al.* (1991). All of these researchers estimate that the subsidy value of loans is 1/2 their face value. Omitting work study from this definition results in a concept that basically includes only money that is "given" to a student. The final definition is equivalent to the notion of "current price," or the immediate money needed to pay for college after all financial

aid -- grants, loans, and work study -- is deducted from the total college cost. Findings using these three definitions result in interesting differences, particularly for students in higher cost schools.

These three definitions of net price are at times further subdivided into definitions which also account for the source of the aid. Net price categories which only subtract Federal aid are contrasted to categories which deduct aid from all sources. These comparisons are particularly fruitful for students enrolled in private colleges and universities where non-Federal aid is important and for students from higher-income families.

Income

All of the analyses in this report use a measure of total family income which includes earnings as well as other income. Income quartiles for full-time, full-year dependent undergraduates divide the students into four groups of approximately the same size. The income quartiles for the NPSAS subsample used in this report are as follows:

Quartile	Distribution
Lowest	$20,817 and lower
2	$20,818 to $35,170
3	$35,171 to $51,590
Highest	$51,591 and higher

College Costs, Income, and Financial Aid

Understanding the precise contribution of different types of financial aid toward reducing total education costs for different types of students attending different types of schools quickly becomes complex. Our basic analysis uses three different measures of net price, four income groups, and five postsecondary institutional categories, allowing us to address a wide array of research questions. Before putting all of these elements together to examine how these factors interact to determine what students pay to attend college, we provide background data on

financial aid awards. Specifically, the tables presented in this section address the following questions:

- Who receives aid?
- What types of aid do students receive?
- Who provides this aid?

Table 2 presents the percentages of students in different types of schools and from different economic backgrounds who received any type of financial aid. Table 3 presents a breakdown of this aid by type of aid, and Table 4 examines the sources of aid students received.

In all types of postsecondary institutions, students from lower-income families were more likely to receive financial aid than were students from higher-income backgrounds. Generally, the more expensive the type of school, the higher the percentage of students who received some form of aid. In four-year private colleges and universities, a large percentage of students from all economic backgrounds received aid. Indeed, half of all students from the highest income families were the recipients of some financial aid.

TABLE 2

Financial Aid Awards by Income Quartiles and School Type

PERCENT RECEIVING ANY AID

	Public		Private		Proprietary
	4-year	2-year	4-year	2-year	
Income Quartiles					
Lowest	81%	64%	91%	88%	93%
2	60%	43%	88%	76%	84%
3	45%	28%	79%	63%	74%
Highest	22%	15%	50%	38%	46%

SOURCE: NPSAS, 1987.

TABLE 3

Type of Financial Aid Awards by Income Quartile and School Type

PERCENT RECEIVING GRANTS

Income Quartiles	Public 4-year	Public 2-year	Private 4-year	Private 2-year	Proprietary
Lowest	73%	55%	85%	81%	81%
2	43%	33%	78%	61%	45%
3	23%	18%	64%	44%	18%
Highest	11%	7%	34%	30%	10%

PERCENT RECEIVING LOANS

Income Quartiles	Public 4-year	Public 2-year	Private 4-year	Private 2-year	Proprietary
Lowest	43%	12%	62%	52%	78%
2	35%	14%	60%	41%	75%
3	24%	7%	52%	37%	65%
Highest	8%	5%	24%	13%	35%

PERCENT RECEIVING WORK STUDY

Income Quartiles	Public 4-year	Public 2-year	Private 4-year	Private 2-year	Proprietary
Lowest	17%	8%	30%	14%	1%
2	9%	3%	29%	11%	1%
3	4%	1%	19%	7%	0%
Highest	1%	0%	8%	1%	1%

SOURCE: NPSAS, 1987.

TABLE 4

Source of Financial Aid Awards by Income Quartile and School Type

PERCENT RECEIVING FEDERAL AID

Income Quartile	Public 4-year	Public 2-year	Private 4-year	Private 2-year	Proprietary
Lowest	70%	48%	79%	77%	90%
2	44%	26%	70%	49%	76%
3	27%	10%	56%	38%	65%
Highest	9%	4%	25%	15%	36%

PERCENT RECEIVING STATE AID

Income Quartile	Public 4-year	Public 2-year	Private 4-year	Private 2-year	Proprietary
Lowest	40%	24%	55%	44%	15%
2	22%	16%	44%	36%	16%
3	9%	8%	25%	21%	10%
Highest	3%	0%	9%	14%	3%

PERCENT RECEIVING INSTITUTIONAL AID

Income Quartile	Public 4-year	Public 2-year	Private 4-year	Private 2-year	Proprietary
Lowest	22%	17%	63%	45%	6%
2	20%	15%	67%	44%	9%
3	16%	12%	59%	30%	8%
Highest	10%	11%	34%	21%	6%

SOURCE: NPSAS, 1987.

Specific types of financial aid received also varied by income and type of school (Table 3). Students enrolled in private four-year institutions in all income categories were most likely to receive grants, followed by students in private two-year colleges, proprietary schools, public four-year colleges and universities, and finally, public two-year institutions.

Loans, however, were most likely to be received by students in proprietary schools. In all income categories, a higher percentage of students enrolled in proprietary schools borrowed money to attend school than did students from similar economic backgrounds who attended public and private, four- and two-year colleges and universities. At least three-quarters of all proprietary school students in the bottom two income categories received loans to finance their educations. In the next two income groups, 65 percent and 35 percent of all proprietary school students, respectively, were loan recipients.

Students attending private colleges and universities fell between students in proprietary schools and public colleges with regard to their borrowing money for postsecondary education. Furthermore, very few students, regardless of income, who enrolled in public two-year colleges took out loans to help finance their educations.

Students in private institutions of higher education were also more likely to have obtained work study funds than students in public colleges and universities. Thirty percent of all private four-year students from the lowest income category received work study funds, in contrast to the 17 percent of students receiving funds from this same background in public four-year schools. Proprietary school students basically did not receive work study money.

Finally, data on the sources of financial aid reveal that students in high cost schools (private two- and four-year and proprietary) and from low-income families were the primary recipients of Federal aid (Table 4). Since Federal financial aid is primarily based on need, this suggests that aid from this source is distributed to those students for whom it is intended. State

aid also appears to be predominantly need-based. Institutional aid, however, appears to be used to a large extent by private two-and four-year institutions.[2] Even students from high income families were likely to receive institutional aid in private four-year schools, and to some extent, in private two-year colleges as well.

This brief description of financial aid types and sources suggests that many factors interact to determine the aid that students receive. It also provides a context for examining the actual prices which students pay to attend college and for comparing these net prices to the posted prices. Of primary interest to this paper are the following questions:

- What do students actually pay to attend different types of postsecondary institutions?
- How does this vary by the economic background of the student?
- Is financial aid being awarded to those students who need it the most?
- What is the net price differential for "needy" students between public and private institutions?

Table 5 presents data addressing all of these questions. This exhibit presents the net prices paid by all financially dependent, full-time, full-year undergraduate students, both aided and unaided.[3] (Table A-2 in the Appendix uses these same data and presents results in terms of the proportion of total educational costs covered by different aid awards.)

Not surprisingly, the average cost of postsecondary education varied considerably across different school types and for students from different economic backgrounds. Three critical points emerge from this table:

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[2]In a companion paper, Sherman and Cohen (1991) found that private four-year institutions often awarded institutional aid to students with low levels of "need" as defined by standard financial aid formulas. Students with high GPAs, for example, but little need were likely to receive packages of institutional aid without any Federal or state aid.

[3]Because this paper focuses on how different types of aid reduce costs, we present net price differences for all students, aided and unaided. Results for aided students only are presented in Table A-1 in the Appendix.

TABLE 5

Net Price by Institution Type and Income Quartile: Dependent Undergraduates

School Type	Income	Average Costs	Grants	NET PRICE: Grants + 1/2 Loans	NET PRICE: Grants + Loans + Work Study
Public 4-Year	Lowest	$ 5,488	$ 3,802	$3,377	$2,777
	2	$ 5,462	$ 4,763	$4,394	$3,926
	3	$ 5,557	$ 5,201	$4,947	$4,651
	Highest	$ 5,783	$ 5,618	$5,519	$5,405
Public 2-Year	Lowest	$ 3,855	$ 2,973	$2,859	$2,665
	2	$ 3,703	$ 3,395	$3,260	$3,097
	3	$ 3,496	$ 3,390	$3,329	$3,261
	Highest	$ 3,451	$ 3,389	$3,380	$3,372
Private 4-Year	Lowest	$10,083	$ 5,821	$5,028	$3,876
	2	$10,278	$ 7,013	$6,197	$5,081
	3	$10,579	$ 8,441	$7,768	$6,903
	Highest	$11,341	$10,394	$10,051	$9,623
Private 2-Year	Lowest	$ 6,500	$ 3,984	$3,405	$2,738
	2	$ 6,583	$ 5,154	$4,666	$4,079
	3	$ 6,702	$ 5,860	$5,391	$4,890
	Highest	$ 7,333	$ 6,791	$6,634	$6,474
Proprietary	Lowest	$ 7,882	$ 6,112	$5,068	$4,010
	2	$ 8,278	$ 7,564	$6,364	$5,146
	3	$ 8,290	$ 7,996	$6,973	$5,951
	Highest	$ 8,680	$ 8,575	$8,039	$7,499

SOURCE: NPSAS, 1987.

- Financial aid resulted in substantial reductions in the cost of postsecondary education for lower-income students;
- Lower-income students relied heavily on loans and work study to supplement grants and further reduce their educational costs; and
- Financial aid played a particularly critical role in reducing the premium paid by lower-income students to attend higher priced private colleges and universities.

Below we discuss each of these findings.

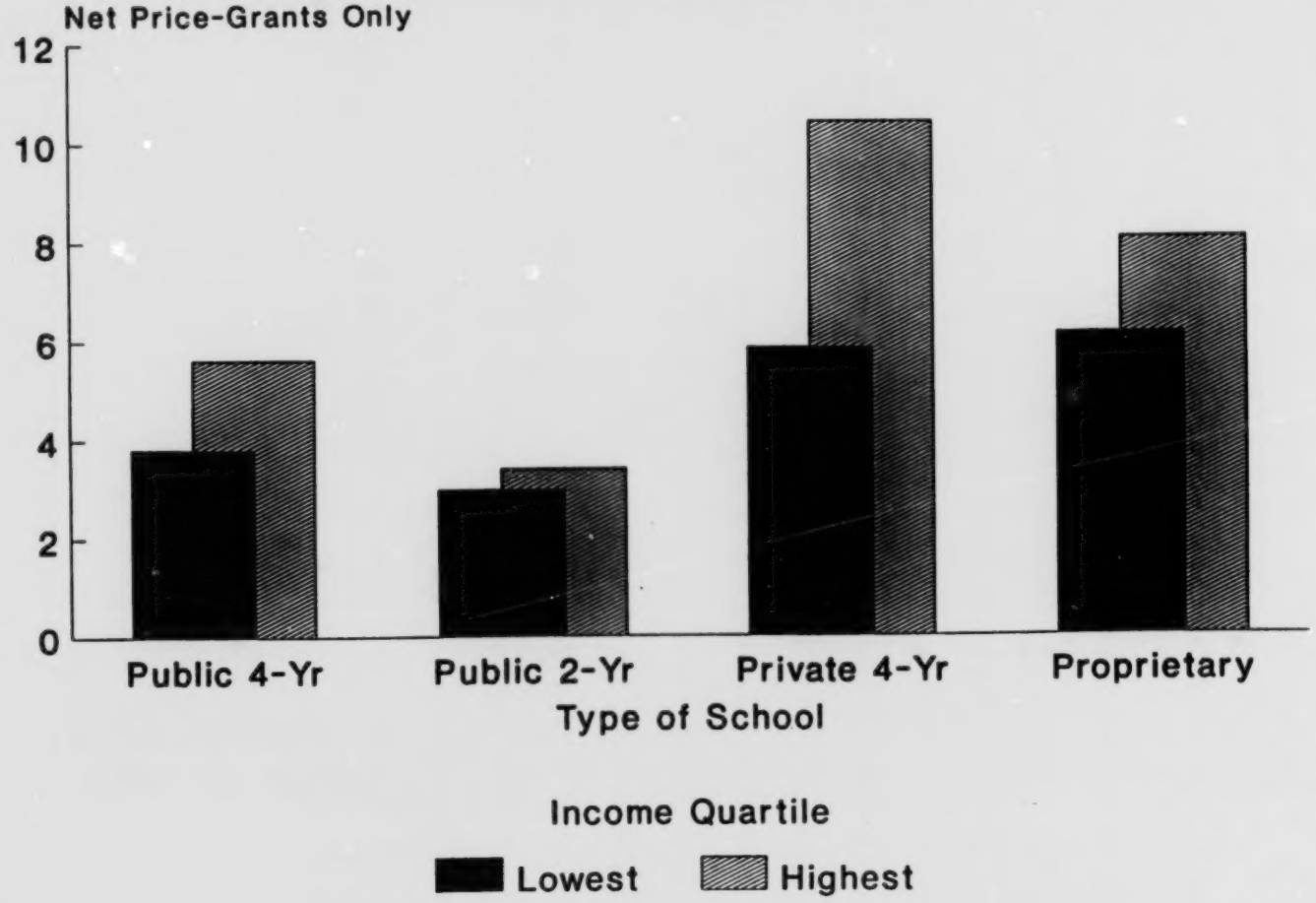
Net Price

The first finding implies that financial aid appeared to be going to those students who needed it the most.[4] In all five types of schools and across all three definitions of net price, students in the lower-income categories received more financial aid and subsequently, their net price was considerably lower than that of students in the higher-income categories. Using the third definition of net price which is the most inclusive, we see, for example, that students in the lowest income category in public four-year institutions paid, on average, $2,777 for their undergraduate educations in 1986-87. Students in the highest income category paid almost double this amount, $5,405. In private four-year schools, the differential was even larger: students in the lowest income category paid an average of $3,876 to attend these schools and students in the highest income category paid $9,623. Figure 3 depicts the differential between what students from the lowest and highest income categories paid to attend different types of schools when only grants are considered.

[4]Financial aid formulas use specific definitions of "need" which incorporate a calculated monetary contribution which the family is expected to make. Income, assets, outstanding debts, and family characteristics are all considered when calculating the "expected family contribution" (EFC). This EFC is considered along with a student's educational costs to determine "need." Income is not synonymous with need, but it is highly correlated. Income is the primary independent variable used in this report.

FIGURE 3

Lower Income Students Pay Less to Attend College



SOURCE: NPSAS, 1987.

The Contribution of Loans and Work Study

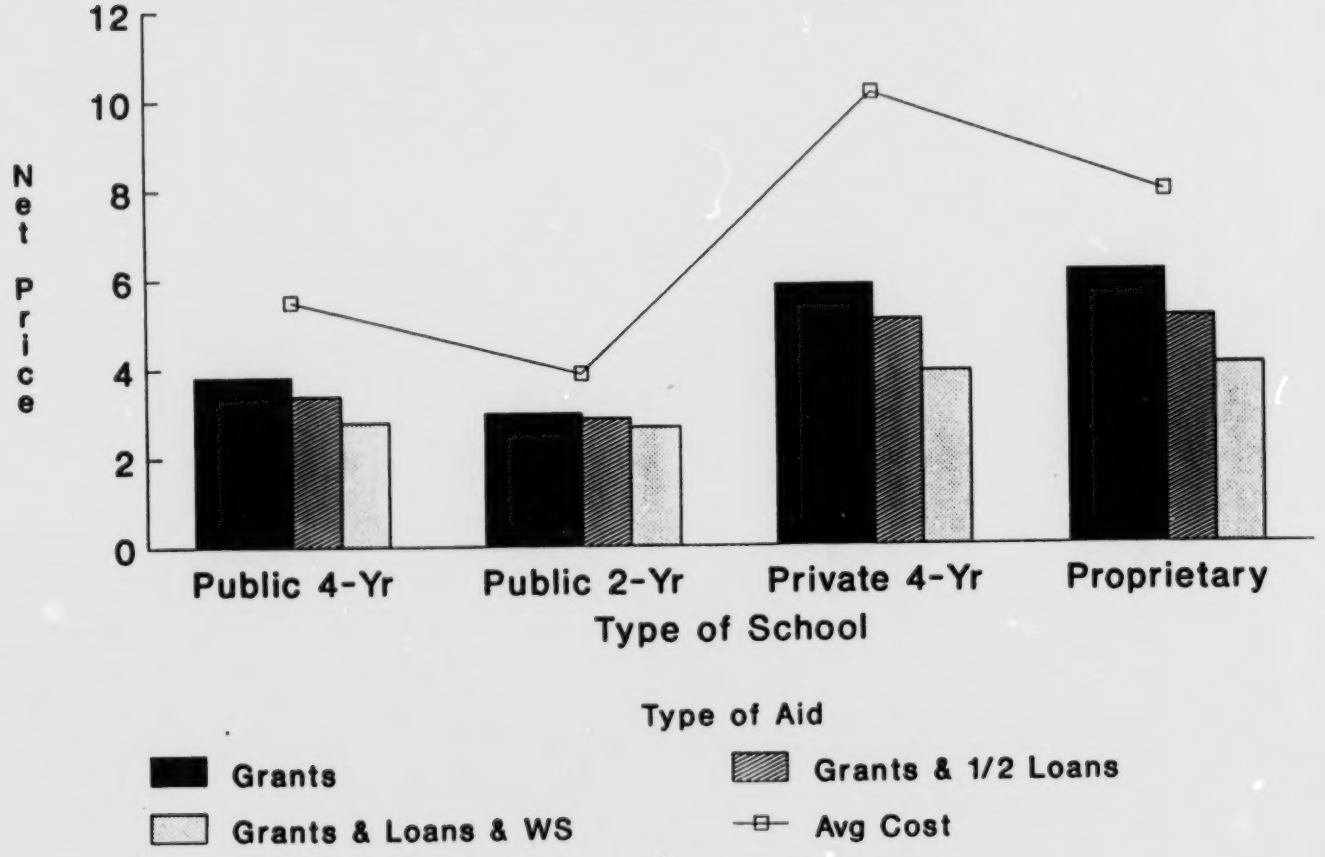
Looking across measures of financial aid reveals the importance of loans and work study aid in reducing the price paid by lower-income students to attend college. Grants alone only partially reduce educational costs for these students. As an example, the net price for the lowest income students in public four-year schools when only considering grant aid was $3,802, or $1,686 less than the average cost of attendance which was $5,488. When including the subsidized value of loans along with the full value of grants, the net price reduced to $3,337. The price considering all forms of financial aid at full face value, however, was well under $3,000.

Reliance on non-grant financial aid is even more dramatic in private four-year colleges and universities. In these institutions, the net price for the lowest income students after grants alone are deducted was $5,821; the price when all forms of aid are deducted at the full value was almost $2,000 less, or $3,876. These same types of differences held in proprietary schools and private two-year colleges, but interestingly the differences across the three net price categories were relatively small for students enrolled in public two-year colleges. Differences across the three net price categories are presented graphically in Figure 4 for the lowest income students.

Reducing the Public/Private Cost Differential

Another important question is whether financial aid provides lower-income students with access to higher-priced schools. This is a particularly important comparison for lower-income students who would technically be eligible to receive large amounts of financial aid. In other words, this comparison addresses whether students with potentially high need can be awarded large enough amounts of financial aid to erase the price differential between attending a public

FIGURE 4
Grants Alone Do Not Cover All Educational Costs For Lowest Income Students



SOURCE: NPSAS, 1987.

and private college. The most relevant comparison here is between public and private four-year institutions.[5]

Across all definitions of net price, the higher the income of the student's family, the larger the difference in net price between attending a public and private four-year college. Comparing students from the highest income backgrounds and using the third, most inclusive definition of net price, we see, for example, a large difference in what was paid to attend college. Private college costs averaged $9,623 while public college costs averaged $5,405 for students from this income background. This is a difference of over $4,000. On the other hand, the difference between attending a public and private four-year college was only $1,100 for students from the lowest income families and $1,100 for students from families in the second income quartile. For these students, education costs averaged $2,777 for public four-year schools and $3,876 for private four-year schools.

Figure 5 compares the net price differences of attending a public and private four-year college for students from different income backgrounds.

The Federal Role

Thus far, all analyses have focused on the types of aid students receive -- grants, loans, and work study. Who is providing the aid is also an important issue. Comparing the relative contribution of Federal aid under the three different definitions of net price is revealing. For students enrolled in public four-year colleges and universities, Federal financial aid awards are the primary contributor to the total financial aid package for lower-income students. (See Table 6.)

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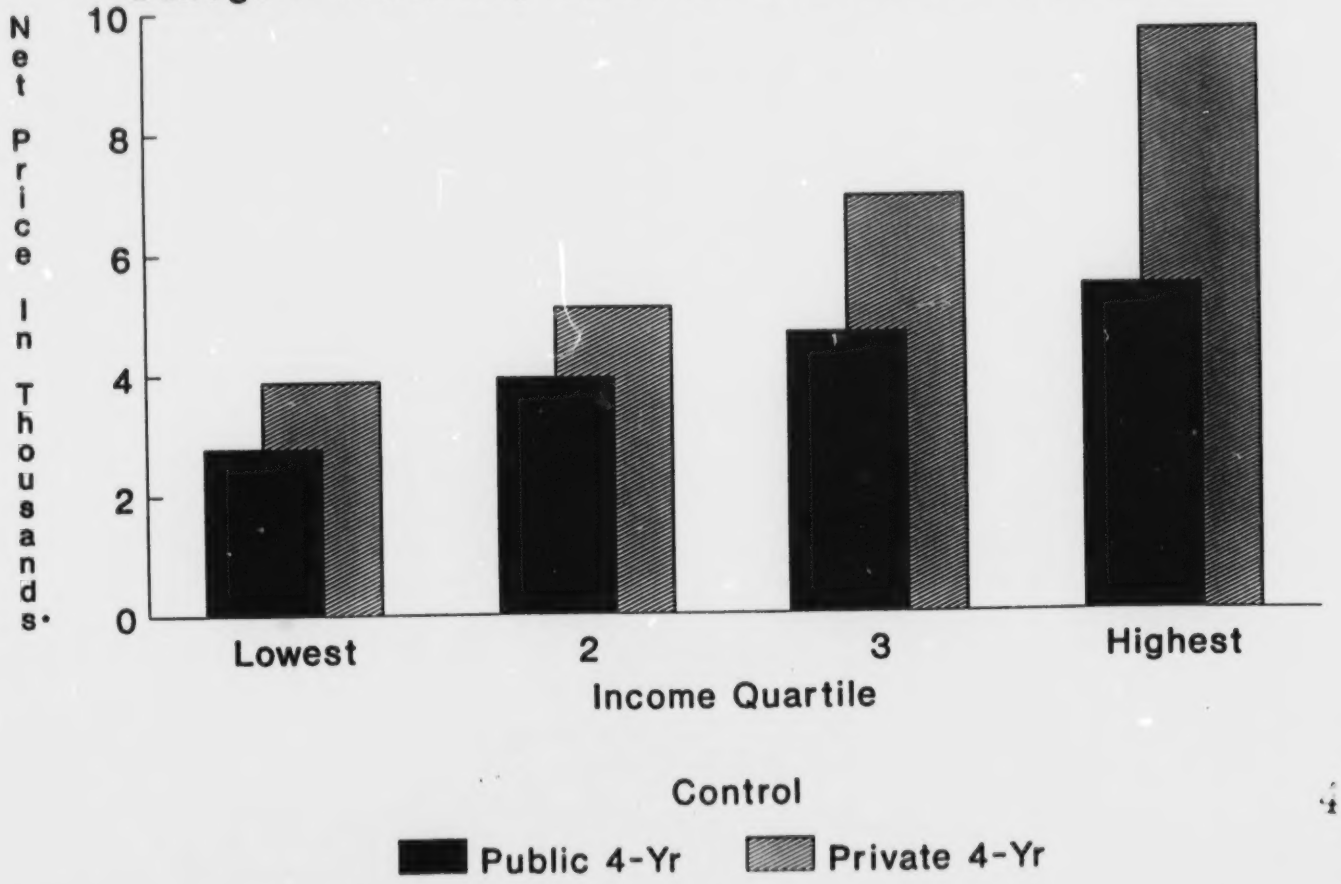
[5]Since only about two percent of all students enrolled in higher educational institutions attend private two-year colleges, comparisons between these schools and their public counterparts are meaningless. For some students, particularly those interested in vocational types of programs, there may be a decision to be made between attending a proprietary school and a public two-year college. However, the major market choice for prospective students is generally between a public four-year and a private four-year college or university.

FIGURE 5

Net Price Difference Between Attending a Public and Private College Is Relatively Small for Low Income Students



•Grants, loans, and work study deducted at full value.

SOURCE: NPSAS, 1987.

Students from the higher-income backgrounds actually receive very little financial aid from Federal sources.

Among lower-income students, Federal grants reduce the average cost of attending a public four-year college by approximately $1,000, from $5,488 to $4,455. When grants from all sources are considered, the average net price is reduced another $600 to $3,802. Regardless of the net price category, Federal aid supplies the majority of all financial aid to students enrolled in public four-year colleges. This finding emerges even more clearly when examining both Federal and all financial aid as a proportion of all educational costs.

The private sector story is different. Here Federal aid is a smaller proportion of total costs than is aid from other sources, particularly institutional aid. If grants only are considered, Federal aid contributes, on the average, only $1,383 or 15 percent of total costs for the lowest income students resulting in a net price of $8,700. When grants from all sources are subtracted from educational costs, the net price is reduced considerably, to $5,821. These dramatic drops of close to $3,000 occur across all three definitions of net price.

Even more dramatic, however, are the drops in net price for students from the other three income categories, particularly when considering grants only. Whereas Federal grants contributed 5 percent to the total educational costs for students in the next lowest income category, grants from all sources contributed almost one third, 31 percent. This means a decrease in net price from $9,774 to $7,013. Even students from the highest income category benefit from non-Federal grant aid in the private sector. Their net price dropped, on average, $850. Considering that all students are being examined and not just those receiving aid, this decrease is notable.

Another way to examine the relative contribution of aid to students' education costs is to determine the extent to which grants, loans, and work study reduce a student's need. Thus far, all of our analyses have focused on income differences in what students paid to attend different types

TABLE 6

Net Price and Proportions of College Costs Covered by Federal Financial Aid and All Aid: Dependent Undergraduates in Public Four-Year Institutions

Income	Average Costs	Grants	Grants + 1/2 Loans	Grants + Loans + Work Study
PRICE NET OF FEDERAL AID				
Lowest	$5,488	$4,455	$4,041	$3,494
2	$5,462	$5,240	$4,873	$4,450
3	$5,557	$5,500	$5,254	$4,989
Highest	$5,783	$5,751	$5,659	$5,569
PRICE NET OF ALL AID				
Lowest	$5,488	$3,802	$3,377	$2,777
2	$5,462	$4,763	$4,394	$3,926
3	$5,557	$5,201	$4,947	$4,651
Highest	$5,783	$5,618	$5,519	$5,405
PROPORTION OF COSTS COVERED BY FEDERAL AID				
Lowest	$5,488	.20	.27	.37
2	$5,462	.04	.10	.18
3	$5,557	.01	.05	.10
Highest	$5,783	.01	.02	.03
PROPORTION OF COSTS COVERED BY ALL AID				
Lowest	$5,488	.32	.39	.50
2	$5,462	.12	.19	.27
3	$5,557	.06	.11	.16
Highest	$5,783	.03	.04	.06

SOURCE: NPSAS, 1987.

TABLE 6

Net Price and Proportions of College Costs Covered by Federal Financial Aid and All Aid: Dependent Undergraduates in Private Four-Year Institutions (Continued)

Income	Average Costs	Grants	Grants + 1/2 Loans	Grants + Loans + Work Study
		PRICE NET OF FEDERAL AID		
Lowest	$10,083	$8,700	$7,965	$6,962
2	$10,278	$9,774	$8,982	$7,998
3	$10,579	$10,339	$9,676	$8,928
Highest	$11,341	$11,244	$10,934	$10,596
		PRICE NET OF ALL AID		
Lowest	$10,083	$5,821	$5,028	$3,876
2	$10,278	$7,013	$6,197	$5,081
3	$10,579	$8,441	$7,768	$6,903
Highest	$11,341	$10,394	$10,051	$9,622
		PROPORTION OF COSTS COVERED BY FEDERAL AID		
Lowest	$10,083	.15	.23	.33
2	$10,278	.05	.13	.23
3	$10,579	.02	.09	.16
Highest	$11,341	.01	.04	.07
		PROPORTION OF COSTS COVERED BY ALL AID		
Lowest	$10,083	.45	.53	.65
2	$10,278	.31	.39	.51
3	$10,579	.19	.26	.35
Highest	$11,341	.08	.12	.16

SOURCE: NPSAS, 1987.

of postsecondary institutions. While income is highly correlated with need, other personal and economic circumstances are considered when actually calculating financial need.

For aided students, an "expected family contribution" (EFC) measure was available on NPSAS. This measure is a dollar amount which determines how much families are expected to contribute toward their children's educational expenses. This amount is then compared to total educational costs to determine the student's financial need.

Table 7 presents three different levels of student need:[6] overall need, need which remained after Federal financial aid is subtracted from total costs, and need which remained after financial aid from all sources was deducted. These data are presented for aided students only since the EFC measure was available predominantly for those students who had applied for and received Federal aid. In all three instances, the most comprehensive net price measure is used -- that which deducts the full face value of grants, loans, and work study.

These data do indicate that while Federal aid reduces need considerably in all types of postsecondary institutions, other sources of aid, particularly in private institutions, also contribute significantly to reducing need. In public four-year colleges and universities, for example, students from the lowest income background were left with almost $2,000 of unmet need after Federal aid was deducted. Aid from other sources reduced this need to slightly over $1,200.

In private four-year colleges and universities, students from the lowest income families had over $5,000 of unmet need after Federal aid was awarded. Aid from state and institutional sources reduced this unmet need to $2,067. Poorer students thus could not rely on Federal financial aid alone to meet college costs.

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[6]Given the difficulty of obtaining accurate cost and EFC information, it is likely that NPSAS estimates of these variables, while accurate on average, contain a fair amount of random error. The need estimates presented in Table 7 are capped at zero -- negative need not being a meaningful concept. This means that errors in the data leading to underestimates of need were contained at zero while overestimates were unbounded. As a consequence, the need estimates presented are likely to be biased upward.

TABLE 7

Student Financial Need by Income and School Type

	Income	Total Need	Need after Federal aid	Need after All aid
Public 4-year	Lowest	$4,270	$1,990	$1,219
	2	$2,882	$1,504	$ 860
	3	$1,106	$ 502	$ 291
	Highest	$ 284	$ 145	$ 90
Public 2-year	Lowest	$2,711	$1,569	$1,219
	2	$1,637	$ 979	$ 671
	3	$ 785	$ 554	$ 466
	Highest	$ 30	$ 24	$ 0
Private 4-year	Lowest	$8,519	$5,130	$2,067
	2	$7,060	$4,645	$1,686
	3	$4,438	$2,815	$1,035
	Highest	$1,795	$1,068	$ 445
Private 2-year	Lowest	$5,262	$2,802	$1,472
	2	$3,930	$2,577	$1,205
	3	$1,778	$ 813	$ 351
	Highest	$ 722	$ 555	$ 328
Proprie-tary	Lowest	$6,744	$3,110	$2,743
	2	$5,593	$2,766	$2,204
	3	$2,938	$1,428	$1,214
	Highest	$ 922	$ 348	$ 348

SOURCE: NPSAS, 1987.

In considering unmet need two points should be kept in mind. First, the cost figures used in this report represent institutional averages, not what students actually spent. Therefore, students could spend substantially more or less than institution's allow for living expenses, particularly those students not living on-campus. Second, the net price figures only include what students have borrowed, not what they were eligible to borrow. It may be that some students were eligible to borrow additional funds but chose not to because they had alternative ways to finance their education. Using loan eligibility instead of the amount actually borrowed would indicate the full extent to which student aid could have reduced need if students chose to borrow the maximum amount for which they were eligible.

Conclusions

There is no question: financial aid reduces the cost of attending college for many students. The numerous efforts to assist students and their families to meet postsecondary education expenses appear to be reaching a large number of individuals. More specifically, these efforts appear to be reaching the students with the greatest need.

This paper has examined the extent to which financial aid reduces college costs for undergraduate students from different economic backgrounds. Using three different conceptions of "net price," we conclude that financial aid reduced the cost of postsecondary education considerably for students from lower-income families. Indeed, these students paid substantially less to attend college than did students from higher-income families. For example, after all aid was awarded, students from the lowest income quartile paid only $2,777 on average to attend a public four-year institution while students from the highest income quartile paid almost twice that amount -- $5,405. The differential across quartiles for students attending private four-year colleges and universities was even greater. Whereas students from the highest income group paid $9,623 to attend this type of school, students from the lowest income quartile paid $3,876. In

fact, the difference between attending a public and private four-year institution for these students becomes relatively small after all forms of financial aid are considered. Thus, financial aid not only reduces the costs of attending a postsecondary institution but also appears to provide students with choices regarding the type of school they attend.

While many praise the efforts of the Federal government for making postsecondary education accessible to large numbers of students, others are quick to point out that increasingly large numbers of students complete their education in considerable debt. Loans and work study as forms of financial aid contribute significantly to the overall reduction in total education costs. This is particularly the case for lower-income students attending private four-year colleges.

Federal aid is also supplemented by states and institutions for many students. Our analyses indicate that considerable financial need would remain if students only received Federal aid, particularly in the private sector. For example, Federal aid covers only a third of the cost of attending a private four-year college or university for lower-income students.

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APPENDIX A

TABLE A-1

NET PRICE DIFFERENCES BY INSTITUTION TYPE AND INCOME: DEPENDENT UNDERGRADUATES (AIDED STUDENTS ONLY)

School Type	Income	Average Costs	Grants	NET PRICE Grants + 1/2 Loans	NET PRICE Grants + Loans + Work Study
Public 4-Year	Lowest	$ 5,538	$3,448	$2,920	$2,177
	2	$ 5,668	$4,503	$3,887	$3,104
	3	$ 5,783	$4,991	$4,423	$3,763
	Highest	$ 6,189	$5,452	$5,007	$4,498
Public 2-Year	Lowest	$ 3,999	$2,611	$2,432	$2,126
	2	$ 4,034	$3,320	$3,008	$2,630
	3	$ 4,102	$3,719	$3,500	$3,257
	Highest	$ 3,452	$3,039	$2,983	$2,924
Private 4-Year	Lowest	$10,015	$5,314	$4,440	$3,170
	2	$10,367	$6,646	$5,715	$4,443
	3	$10,623	$7,922	$7,071	$5,977
	Highest	$11,214	$9,306	$8,616	$7,752
Private 2-Year	Lowest	$ 6,501	$3,654	$2,999	$2,244
	2	$ 6,800	$4,909	$4,264	$3,488
	3	$ 6,930	$5,592	$4,846	$4,048
	Highest	$ 7,307	$5,898	$5,488	$5,074
Proprietary	Lowest	$ 7,946	$6,050	$4,931	$3,797
	2	$ 8,521	$7,666	$6,231	$4,774
	3	$ 8,687	$8,288	$6,908	$5,528
	Highest	$ 9,266	$9,032	$7,847	$6,651

TABLE A-2

PROPORTION OF COLLEGE COSTS COVERED BY FINANCIAL AID: ALL DEPENDENT UNDERGRADUATES

School Type	Income	Average Costs	NET PRICE		
			Grants	Grants + 1/2 Loans	Grants + Loans + Work Study
Public 4-Year					
	Lowest	$ 5,488	.32	.39	.50
	2	$ 5,462	.12	.19	.27
	3	$ 5,557	.06	.11	.16
	Highest	$ 5,783	.03	.04	.06
Public 2-Year					
	Lowest	$ 3,855	.24	.26	.31
	2	$ 3,703	.08	.11	.15
	3	$ 3,496	.03	.04	.06
	Highest	$ 3,451	.02	.02	.02
Private 4-Year					
	Lowest	$10,083	.45	.53	.65
	2	$10,278	.31	.39	.51
	3	$10,579	.19	.26	.35
	Highest	$11,341	.08	.12	.16
Private 2-Year					
	Lowest	$ 6,500	.40	.49	.59
	2	$ 6,583	.21	.28	.36
	3	$ 6,702	.12	.19	.27
	Highest	$ 7,333	.08	.10	.12
Proprietary					
	Lowest	$ 7,882	.24	.38	.52
	2	$ 8,278	.10	.25	.39
	3	$ 8,290	.04	.16	.29
	Highest	$ 8,680	.01	.08	.14

WHO ATTENDS PROPRIETARY SCHOOLS?

FINDINGS FROM NPSAS

Laura H. Salganik
Patricia A. Hopper

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CHAPTER 1

INTRODUCTION

Two very different types of educational institutions offer postsecondary vocational training: proprietary schools and less-than-four-year public institutions. Less-than-four-year public schools, including community colleges and public vocational schools, receive considerable support through state subsidies and have relatively low student tuition. Proprietary schools, on the other hand, are for-profit businesses whose major revenue source is student tuition. The vast majority of their students receive Federal financial aid, including student loans that must be repaid even if the students do not complete their training. In spite of the high costs and, often, the need to take out loans to pay for their education, growing numbers of students continue to enroll in proprietary schools. According to data from a series of special HEGIS surveys, proprietary school enrollment grew 60 percent between 1976 and 1982 (Carnegie Foundation for the Advancement of Teaching, 1987).[1]

This expansion has important policy implications at the Federal level because it has resulted in a large increase in the percentage of Pell Grant and Stafford Loan dollars supporting proprietary school students. Proprietary school students received 7.9 of all Pell grants in 1973-74, accounting for 7.1 percent of total Pell Grant dollars. In 1988-89 these figures grew to 23.2 percent of total Pell recipients, and 24.4 percent of total Pell dollars. (See Appendix A-1.) Similar increases occurred in the Stafford Loan program. In 1973-74, 5.8 percent of Stafford Loan borrowers attended proprietary schools, accounting for 5.2 percent of the loan dollars. In 1988-89, 34.4 percent of the borrowers attended proprietary schools and received 29.9 percent of

[1] These surveys were conducted biennially between 1976 and 1982 by the National Center for Education Statistics (NCES). They estimated that proprietary school enrollment increased from about 655,000 to about 1,000,000.

the loan dollars. (See Appendix A-2.) Clearly, Federal financial aid has made proprietary schools accessible to low-income students who might not otherwise have been able to afford the tuition.

During this same period, vocational training has assumed increasing importance at less-than-four-year public institutions. Between 1970 and 1980, the number of associate's degrees in occupational areas awarded by community colleges more than doubled -- from 108,000 to 253,000 -- and the percent of associate's degrees in occupational areas increased from 42 to 62 percent (Brint and Karabel, 1989). By 1985, the percent of associate degrees in vocational areas had increased to 69 percent (Goodwin, 1989).

The growing cost to the Federal government of providing aid to proprietary school students, coupled with the availability of vocational programs in public institutions, raises a number of questions about the proprietary school sector. For example, are proprietary schools serving a disproportionate number of low-income students compared to public institutions offering similar courses of study?[2] Related questions are the extent to which proprietary school students rely on Federal financial aid, primarily Pell Grants and Stafford Loans, to pay their tuition, the extent to which proprietary school students rely on the "ability-to-benefit" criterion to allow their students to be eligible for financial aid,[3] and the importance of cost factors for school selection.

In this report, we used data from the National Postsecondary Student Aid Study (NPSAS) to develop an empirical profile of students who were enrolled in proprietary schools in October,

---

[2] This argument has been advanced both by critics and supporters of proprietary schools. Critics contend that, through advertising and other recruitment practices, some proprietary schools seek out low-income students who can pay their tuition with Federal financial aid and then don't provide the services necessary for the students to succeed in the programs. The schools and their associations counter that they are providing an opportunity for a high-risk population to receive training they might not otherwise receive.

[3] The ability-to-benefit provision was added by Congress in 1976 to provide assistance to students who lacked high school credentials but wanted to pursue postsecondary vocational training.

1986.[4] Because public schools provide an alternative for students who choose proprietary schools, we also present profiles for a comparison group of students enrolled in less-than-four-year public institutions. Students were included in the comparison group if they were enrolled in a course of study represented in the proprietary school sample. Appendix B lists the courses of study taken by the NPSAS proprietary school students.[5]

Although the proprietary and public less-than-four-year-institutions often offer similar courses of study, the majority of proprietary school programs can be completed in a shorter period of time than those in public schools. Seventy percent of proprietary school students were in less-than-two-year programs, while 86 percent of those in public institutions were in two-to-three-year programs. Because the length of a program could account for different types of students being attracted to the two types of schools--independent of recruitment, aid, or other factors--our analyses of student background characteristics were conducted separately for students enrolled in programs of different lengths. This allowed comparisons of characteristics of proprietary and public school students in programs that take the same amount of time to complete.

---

[4] The NPSAS in-school sample consists of about 43,000 students enrolled in all types of postsecondary schools in October, 1986. The students were selected from a stratified sample of about 1,000 schools. Data were collected from institutional records and by surveying students on the characteristics of students and their financial aid awards. Because NPSAS included only students enrolled on October 15, and many proprietary school students could be enrolled during the year but not in October, the NPSAS estimate for the number of proprietary school students (about 600,000) is considerably lower than the most recent NCES estimate.

[5] The comparison group included 57 percent of the students in public less-than-four-year postsecondary institutions. Weighted frequencies of students in public less-than-four-year institutions who are not in the comparison group indicate that about half had no program specified or an uncodeable program code in the data. An additional 20 percent were in liberal/general studies. Those not in the sample taking vocational courses were enrolled in library and archival sciences, elementary education, home economics, and agribusiness and agriculture.

Another difference between the two types of schools is that most proprietary school students (84 percent) attended fulltime, while the majority of public school students attended parttime (60 percent). Because the analysis presented in this paper is motivated by the goal of comparing proprietary school students -- most of whom attend full-time -- to a comparable group of public school students, we restricted the comparison sample of public school students to those attending fulltime. Thus, we looked at school selection among students who had chosen to attend fulltime.[6]

In addition to background characteristics, the analysis reports participation in the financial aid system. Although we did not conduct an in-depth analysis controlling for students' financial need, we do present data on aid participation separately for students whose income is below and above the poverty level at the two types of schools. Our interpretation of the results takes into account the fact that tuition at proprietary schools is considerably higher than tuition at public schools, causing students to be more likely to need aid to meet the costs.

The findings presented below report characteristics of the two groups of students for three groups of characteristics:

- Demographic and socioeconomic. Poverty status, family income, gender, race, age, and student aid dependency status.
- Education-related. High school graduation status, educational aspirations, and course of study.
- Participation in financial aid. Aid status, participation in Pell and GSL programs, and importance of financial aid and lower costs for selection of school.[7]

---

[6] One could advance the hypothesis that, like short-term programs, the option of part-time study offered by proprietary schools should appeal to students with limited means. Other analyses have shown that in public institutions, part-time students are less likely to be below the poverty line than full-time students. (However, like students in short-term programs, they are more likely to be older and independent.)

[7] The Stafford Loan program was called the Guaranteed Student Loan (GSL) program at the time that the NPSAS survey was conducted. To report findings from the survey, we refer to it as the GSL program.

Because many of the characteristics related to proprietary school attendance are interrelated, after presenting the descriptive profiles we report a multivariate analysis to assess which were related to proprietary school attendance independently of the other student characteristics and of three other factors related to school choice: the length of the course of study, the importance of financial aid, and the importance of lower costs.

CHAPTER 2

CHARACTERISTICS OF FULL-TIME STUDENTS AT PROPRIETARY SCHOOLS AND LESS-THAN-FOUR-YEAR PUBLIC INSTITUTIONS

In this chapter, we use data from the NPSAS In-School Sample to present a descriptive profile of full-time students attending proprietary schools and of comparable students in less-than-four-year public postsecondary institutions. As explained in the previous chapter, the students in less-than-four-year public institutions were enrolled full-time in courses of study that were also offered by proprietary schools.

We begin by presenting findings on demographic, socioeconomic, and education-related characteristics of the students. To investigate the extent to which differences between the two groups of students were related to the length of their program rather than their school type, results are presented separately for students in less-than-two-year programs and two-to-three-year programs. The final section presents findings for proprietary and public school students in the area of financial aid participation. These profiles are also shown separately for students whose family incomes were below and above the poverty level because financial resources affect participation in financial aid, independently of the type of school.

Unweighted numbers of cases are shown in Appendix C; Appendix D includes percentages and standard errors for the estimates shown in the graphics that follow.[8] The differences discussed below are all statistically significant with a probability level of .05.

Demographic and Socioeconomic Characteristics

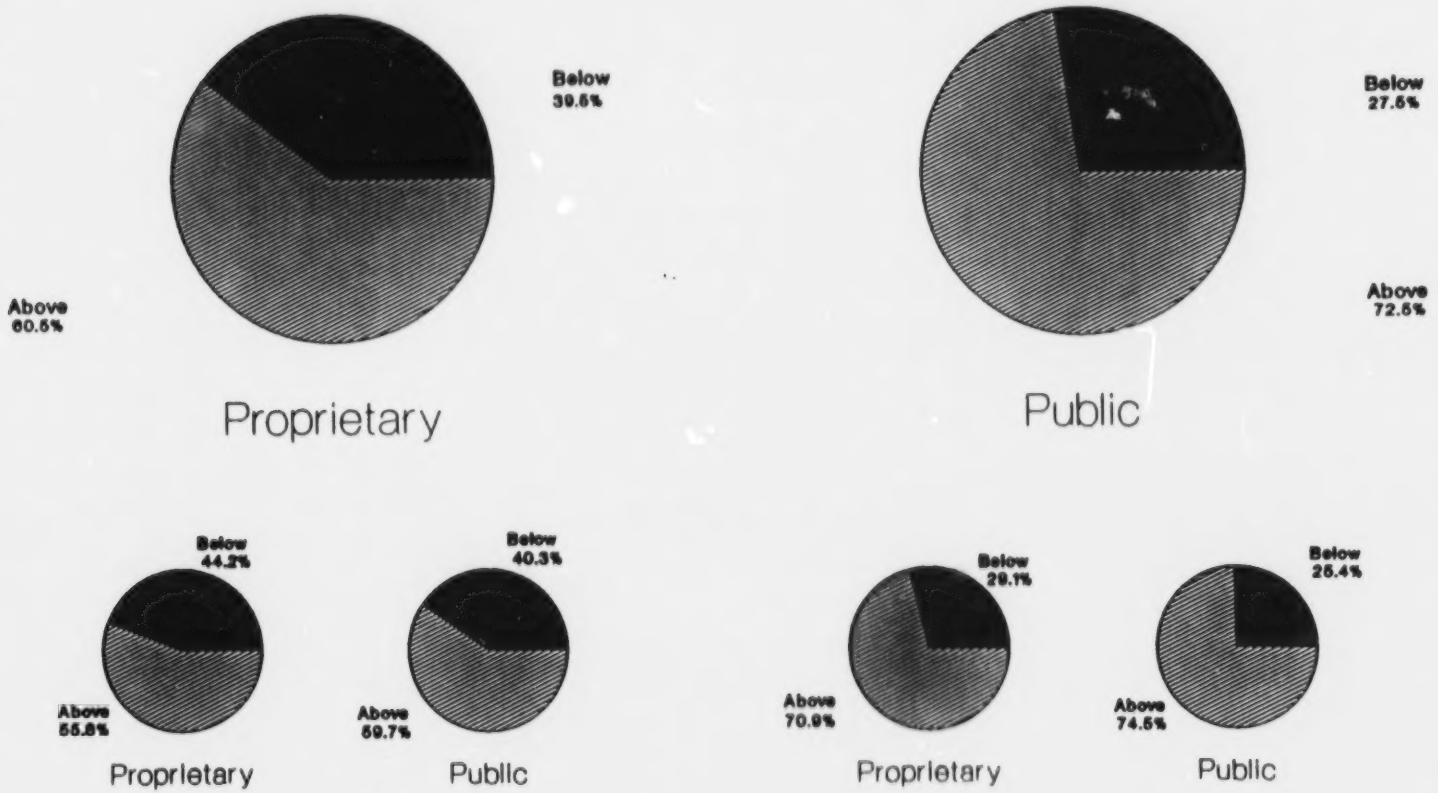
Poverty Status

As illustrated in Exhibit 2-1, 39 percent of the proprietary school students had family incomes below the poverty level, compared to 27 percent of the public school students. In 1986, the poverty rate among persons 18 to 21 years old was 17 percent, and 14 percent among 22 to 24

[8]Standard errors were computed using SAS Proc Wesvar which takes account of the complex sampling design used in drawing the NPSAS sample.

EXHIBIT 2-1

Poverty Status of Selected* Students at Less-Than-Four-Year Postsecondary Institutions



*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

year olds (U.S. Bureau of the Census, 1988). Thus, the poverty rate among both proprietary and public school students in the sample was higher than the population rate.

Differences between the two types of schools in terms of the percent of students below the poverty line disappeared when students were further classified according to whether their program was less-than-two-years or two-to-three-years (Exhibit 2-1). Students enrolled in less-than-two-year programs were equally likely to be below the poverty line regardless of whether they attended public or proprietary schools. Likewise, similar percentages of students enrolled in two-to-three-year programs were below the poverty line in public and proprietary schools.

Family Income

Exhibits 2-2 and 2-3 add to the findings on poverty status by reporting on the distribution of incomes of students in proprietary and public schools. Independent and dependent students are presented separately because of their different income distributions.[9]

Among **dependent** students, those attending proprietary schools were more likely to have incomes below $15,000 and less likely to have incomes over $40,000 than those at public institutions. The same differences were also found among students in two-to-three-year programs. However, in less-than-two-year programs, dependent students' families had similar incomes in proprietary and public schools.

Independent students were equally likely to have incomes below $4,000 at both types of schools; almost 30 percent had incomes this low. Students at proprietary schools were more likely to have incomes in the $4,000 to $10,000 range and less likely to be in the highest income category, above $20,000. These differences also persisted in two-to-three-year programs. In less-than-two-year programs, students at proprietary and public schools had similar incomes.

Thus, among both dependent and independent students the income distribution was similar in less-than-two-year programs at public and proprietary schools. In two-to-three-year programs, proprietary school students were more likely to be in the lower income categories than public school students.

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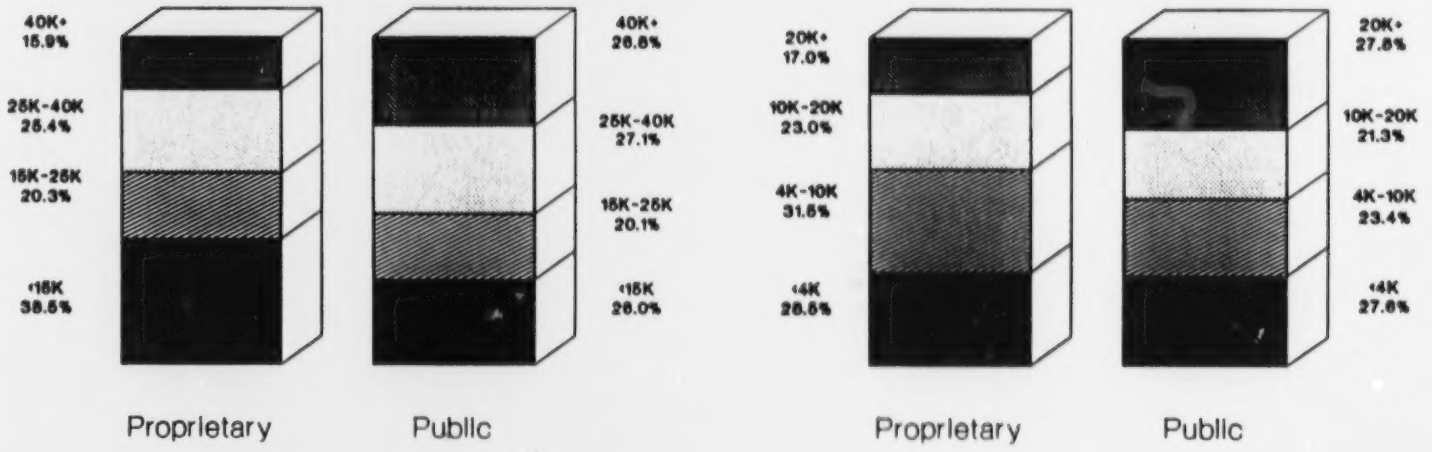
[9]In 1986, Department of Education regulations defined an independent student as one who, for 1985 and 1986, received less than $750 from parents, did not live with parents for more than six weeks, and was not claimed as a tax exemption by parents.

EXHIBIT 2-2

Family Income of Selected* Students at Less-Than-Four-Year Postsecondary Institutions

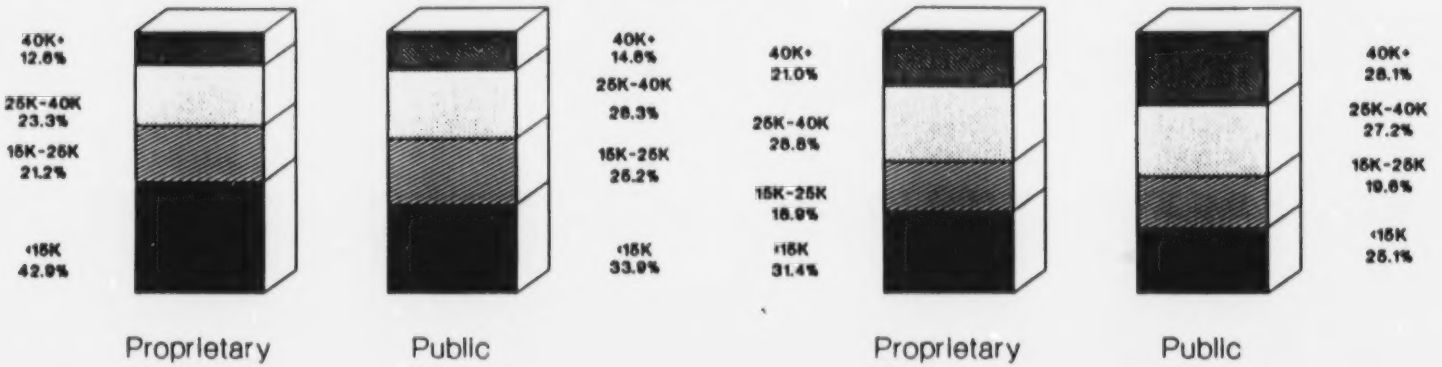


*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

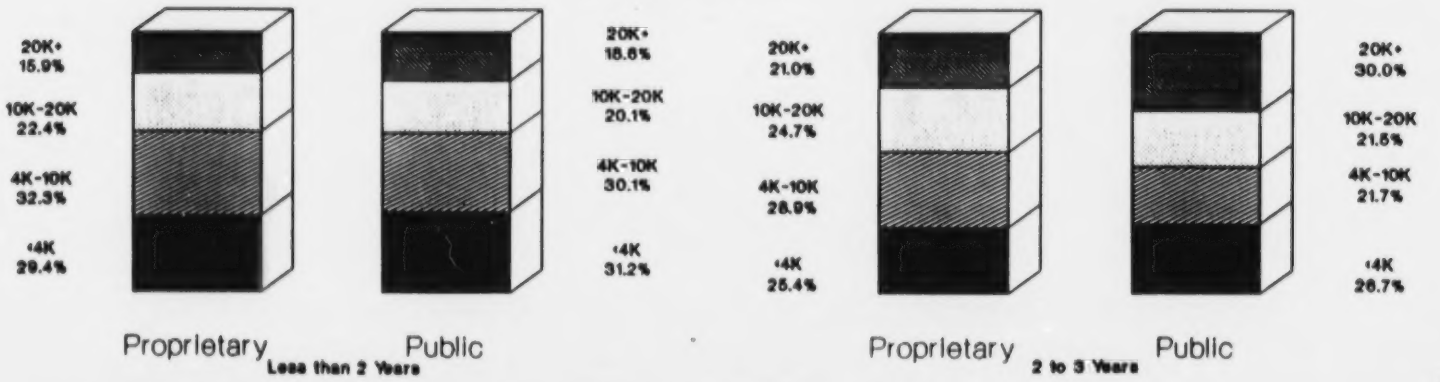
EXHIBIT 2-3

Family Income of Selected* Students at Less-Than-Four-Year Postsecondary Institutions

Dependent



Independent



*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

Gender

Although the majority of students at both proprietary and public schools was female, the percentage was higher in proprietary schools (see Exhibit 2-4). Sixty-six percent of the students at proprietary schools and 55 percent of the public school students were female.

Exhibit 2-4 also shows that proprietary and public schools had similar gender composition in two-to-three-year programs and in public less-than-two-year programs: slightly more than half female. Females, however, represented over 70 percent of the students in less-than-two-year programs in proprietary schools.

Race

Almost 40 percent of the proprietary school students were from minority groups, with blacks constituting the largest minority group, 22 percent. (See Exhibit 2-5.) Black students constituted approximately 12 percent of the population at the public schools. The total minority population at public schools was 27 percent.

The race composition of proprietary and public schools remained different when considering less-than-two-year and two-to-three-year programs separately. Regardless of the program length, the percentage of blacks in proprietary schools was twice the public school percentage.

Age

Students in proprietary schools were, on the average, about six months older than those in public institutions.[10] Proprietary school students were more likely to be 23 to 28 years old than public school students (see Exhibit 2-6). Although the age differences between proprietary and public school students were not statistically significant for the less-than-19-year-old or the 19-to-27-year-old groups, additional analyses showed that proprietary school students were more likely to be younger than 22 years old than public school students.

The slightly younger age of public school students was erased among those in less-than-two-year programs. In two-to-three-year programs, the percent of students 23 to 28 years old

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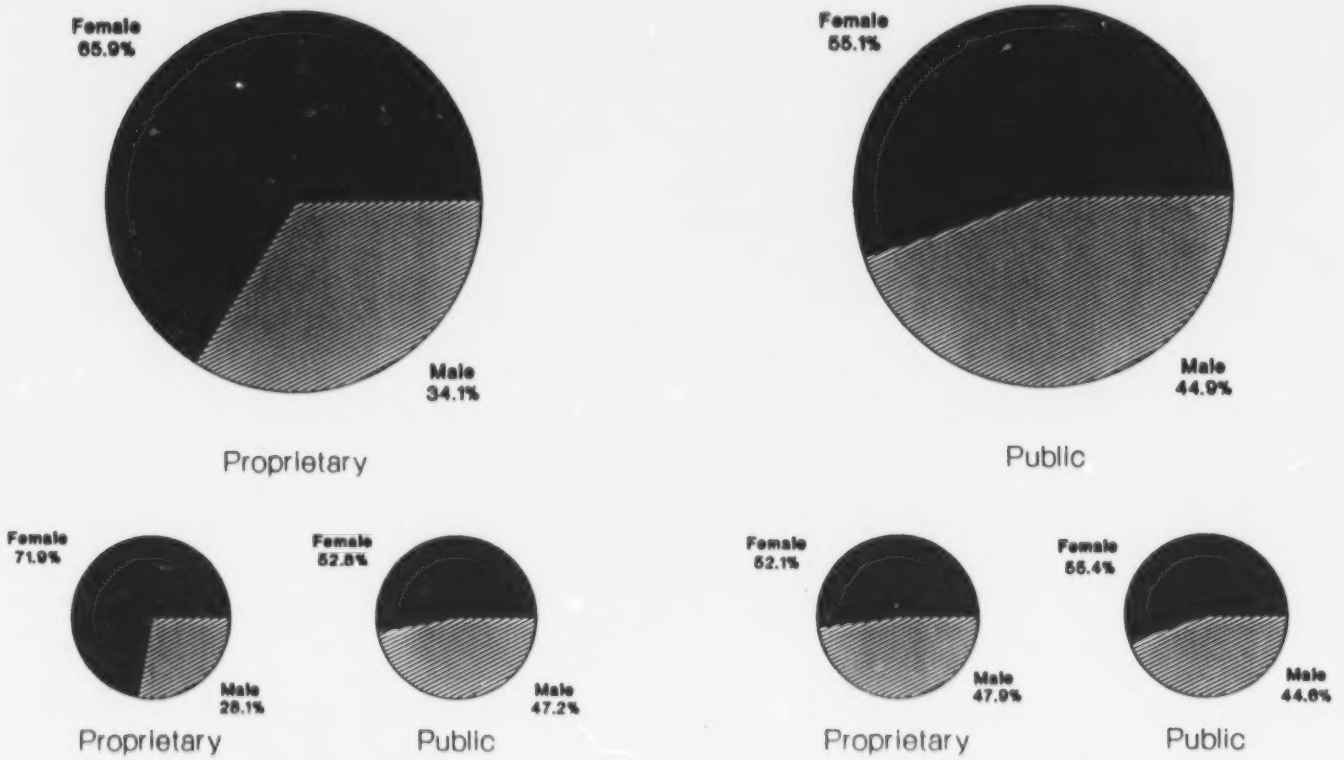
[10]The average age of proprietary school students was 25.3; the average age of public school students was 24.8.

EXHIBIT 2-4

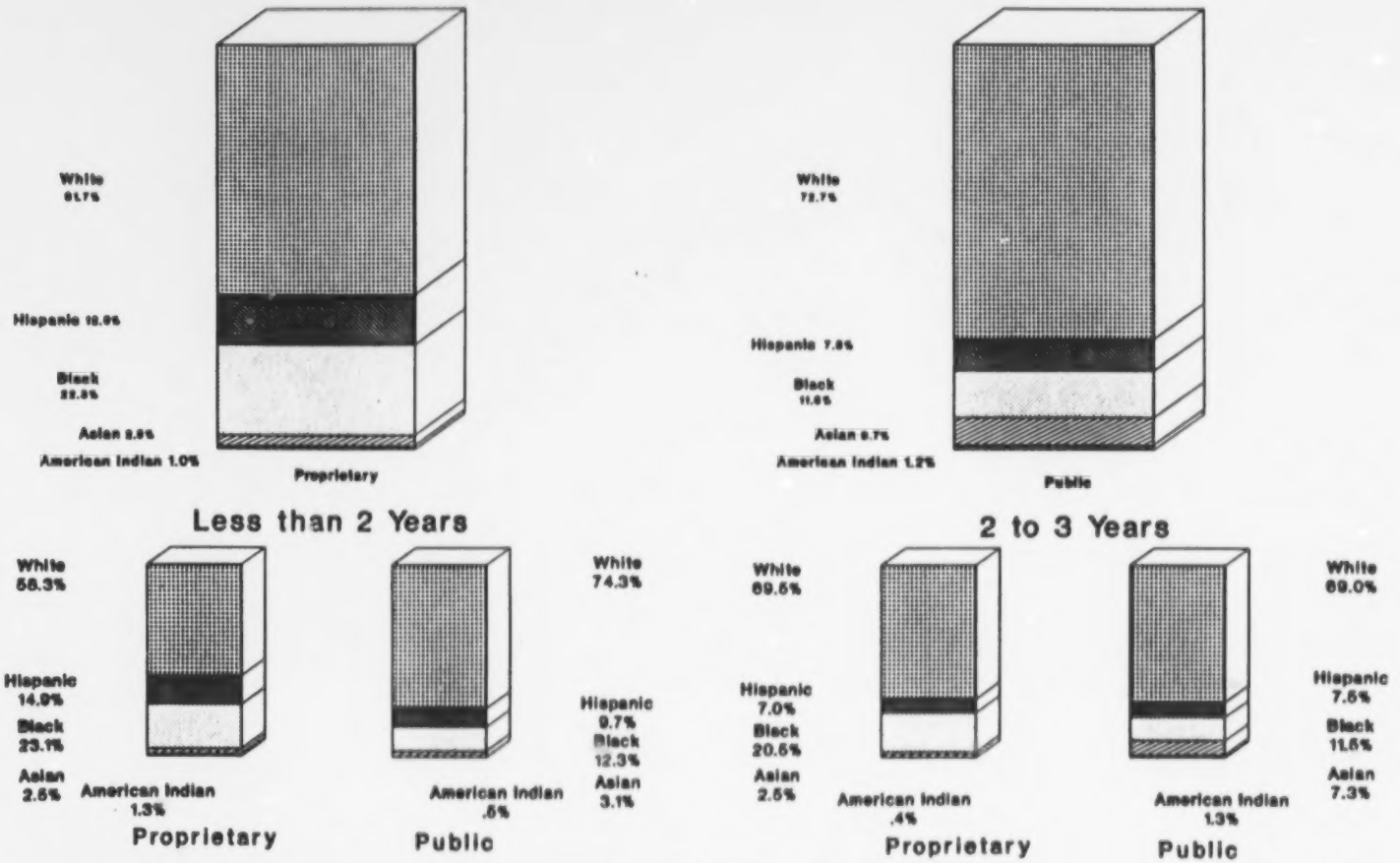
Gender Composition of Selected* Students at Less-Than-Four-Year Postsecondary Institutions



*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

EXHIBIT 2-5

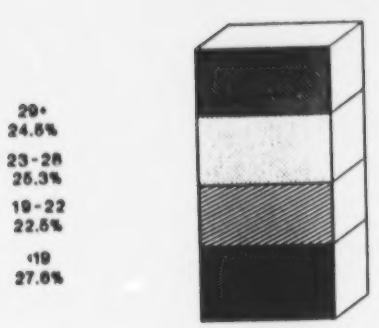
Race of Selected* Students at Less-Than-Four-Year Posecondary Institutions



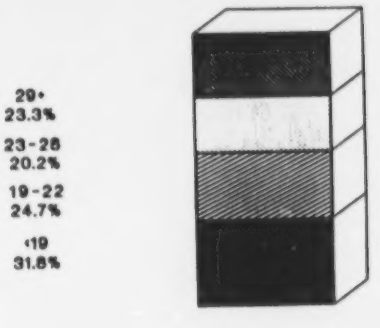
*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

EXHIBIT 2-6

Age Distribution of Selected* Students at Less-Than-Four-Year Postsecondary Institutions

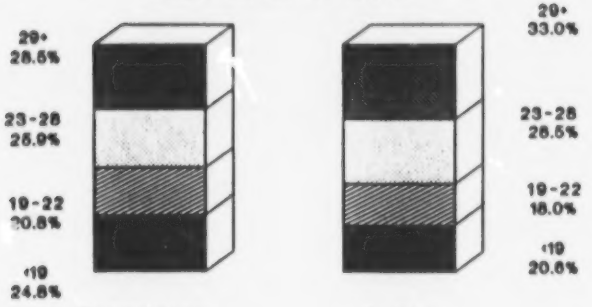


Proprietary



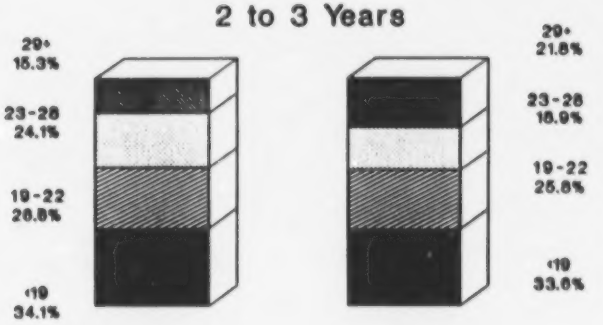
Public

Less than 2 Years



Proprietary Public

2 to 3 Years



Proprietary Public

*Full-time students enrolled in programs offered by Proprietary Schools.

Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

continued to be higher in proprietary schools. However, in two-to-three-year programs, there was a higher percentage of students in the oldest group (29 years old or older) in public schools than in proprietary schools.

Dependency Status

There was a higher percentage of dependent students in the public schools than in the proprietary schools. Almost half of the proprietary school students (47 percent) were classified as dependent, compared to 62 percent of the public school students (see Exhibit 2-7).

Differences between proprietary and public schools in the percent of students who were dependent disappeared when the comparisons were made separately for those in less-than-two-year and two-to-three-year programs. In both types of schools, the majority (60 to 65 percent) of students in two-to-three-year programs were dependent. Conversely, in both types of schools, the majority (55 to 60 percent) enrolled in less-than-two-year programs were independent.

Education-Related Characteristics

In spite of the fact that students in the sample attending proprietary and public schools were all enrolled in the same courses of study, there were notable differences in their education-related characteristics. In this section, we present results on high school graduation status, the students' degree aspirations, and their courses of study.

High School Graduation Status

As shown in Exhibit 2-8, almost 95 percent of the students at public schools and just over 87 percent of the students at proprietary schools had their high school diploma or GED.[11] In addition, public school students were more likely to have a diploma, while proprietary school students were more likely to have a GED.

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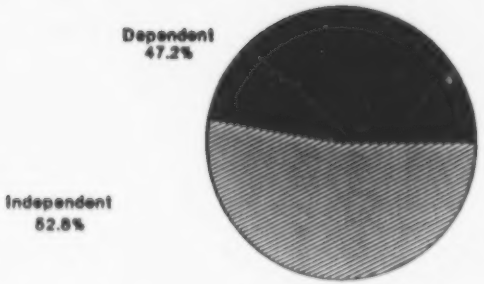
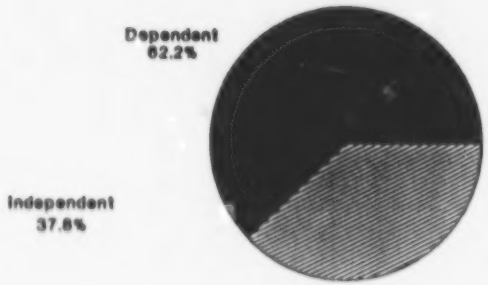
[11]The Did Not Complete category includes students who reported that they had a "certificate of high school completion." Our analysis assumes that these certificates are not bona fide high school credentials, and that students with these certificates need to qualify for aid eligibility under the ability-to-benefit provision. Aid guidelines require that such a certificate be specifically approved by the state and NPSAS provided no information on whether certificates were approved.

EXHIBIT 2-7

Dependency Status of Selected* Students at Less-Than-Four-Year Postsecondary Institutions



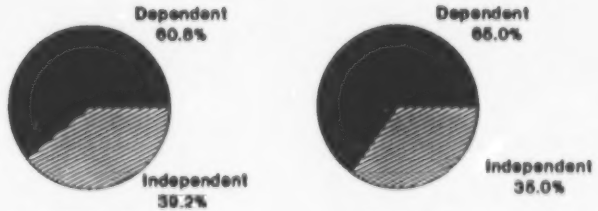
Proprietary



Public

Proprietary Public

Less than 2 Years



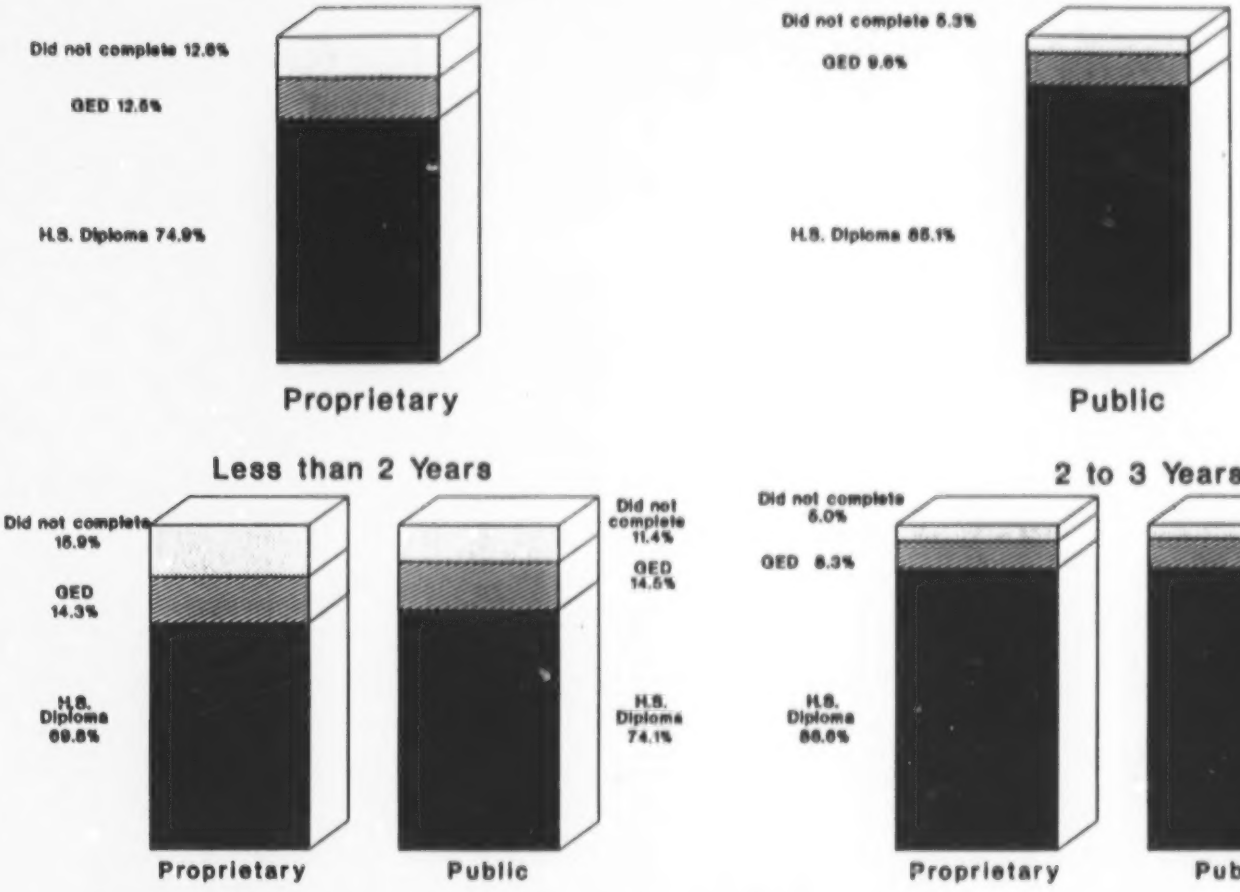
Proprietary Public

2 to 3 Years

*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

EXHIBIT 2-8

High School Completion Status of Selected* Students at <4 Yr. Postsecondary Schools



*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

Proprietary and public school students in two-to-three-year programs had similar high school credentials: in both groups, about 95 percent of students had earned a high school diploma or GED. Differences between the percentage of proprietary and public school students without high school credentials remained in the less-than-two-year programs, where 11 percent of the public school students did not have a diploma or a GED compared to 16 percent of the proprietary school students.

Educational Aspirations

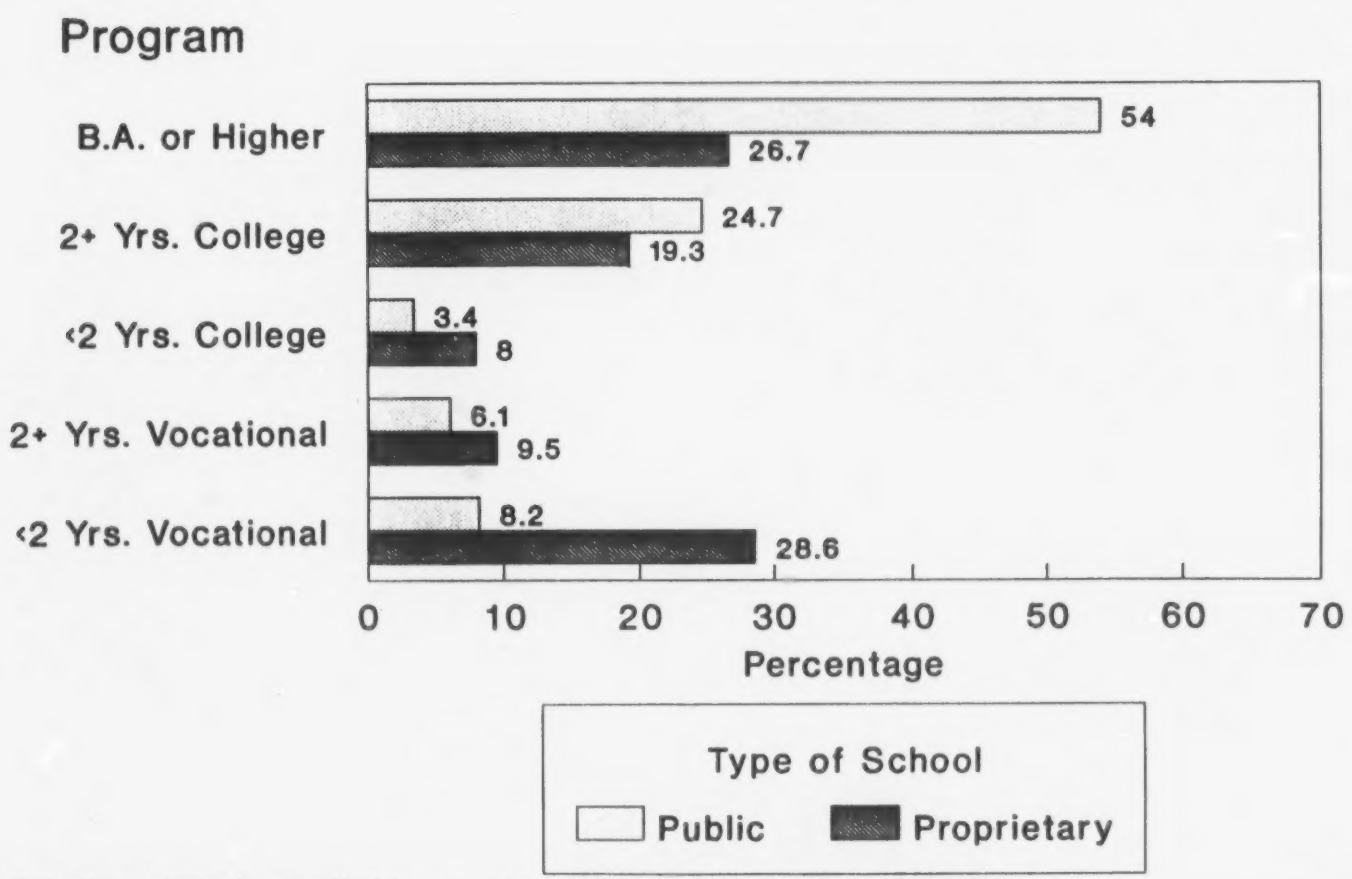
Thirty-eight percent of the students enrolled at proprietary schools expected to complete their education with a vocational degree, while only 14 percent of the public school students aspired to a vocational degree. In contrast, as Exhibit 2-9 shows, 54 percent of the public school students expected to receive a bachelor's degree or a higher degree, compared to 27 percent of the proprietary school students. It is interesting to note that even though they were enrolled in occupational programs, over half of the students at public institutions aspired to earn a bachelor's degree.

These differences generally persisted among students in two-to-three-year programs. For those in less-than-two-year programs, the only difference in educational aspirations was that students in public institutions were more likely to aspire to a 2+ year vocational degree than those in proprietary schools, suggesting that, like many students in public two-to-three-year programs, they were interested in pursuing their education beyond their current school (Exhibit 2-10).

Course of Study

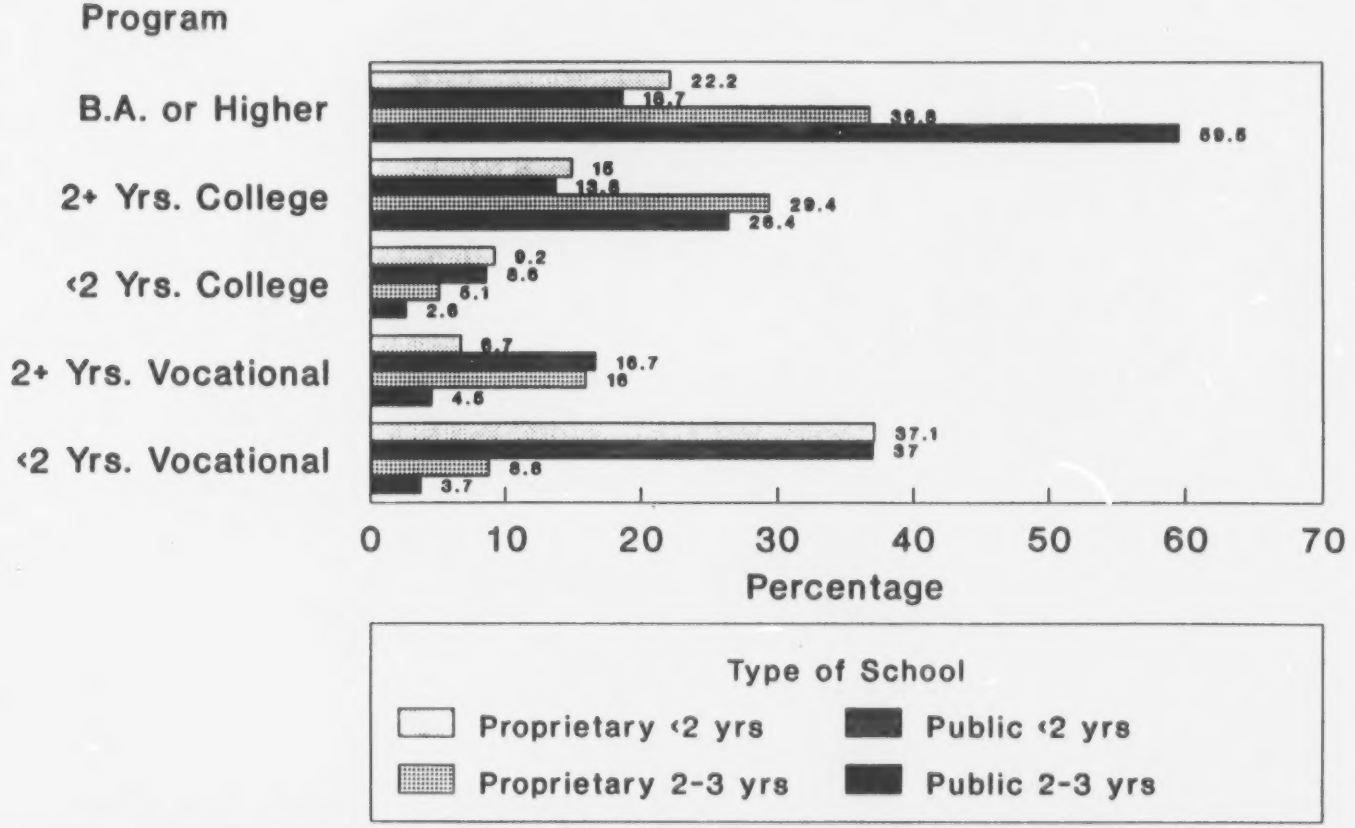
The course of study at proprietary schools with the largest percentage of students enrolled was business/administrative support (including secretarial), as shown in Exhibit 2-11. Approximately one quarter of the students were enrolled in these programs, almost double the percent enrolled in the next two most popular programs which were engineering (including electronics and communications) and personal services (including cosmetology). At the public

EXHIBIT 2-9
Educational Aspirations of Selected• Students at <4 Yr. Postsecondary Schools



• Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center For Education Statistics.

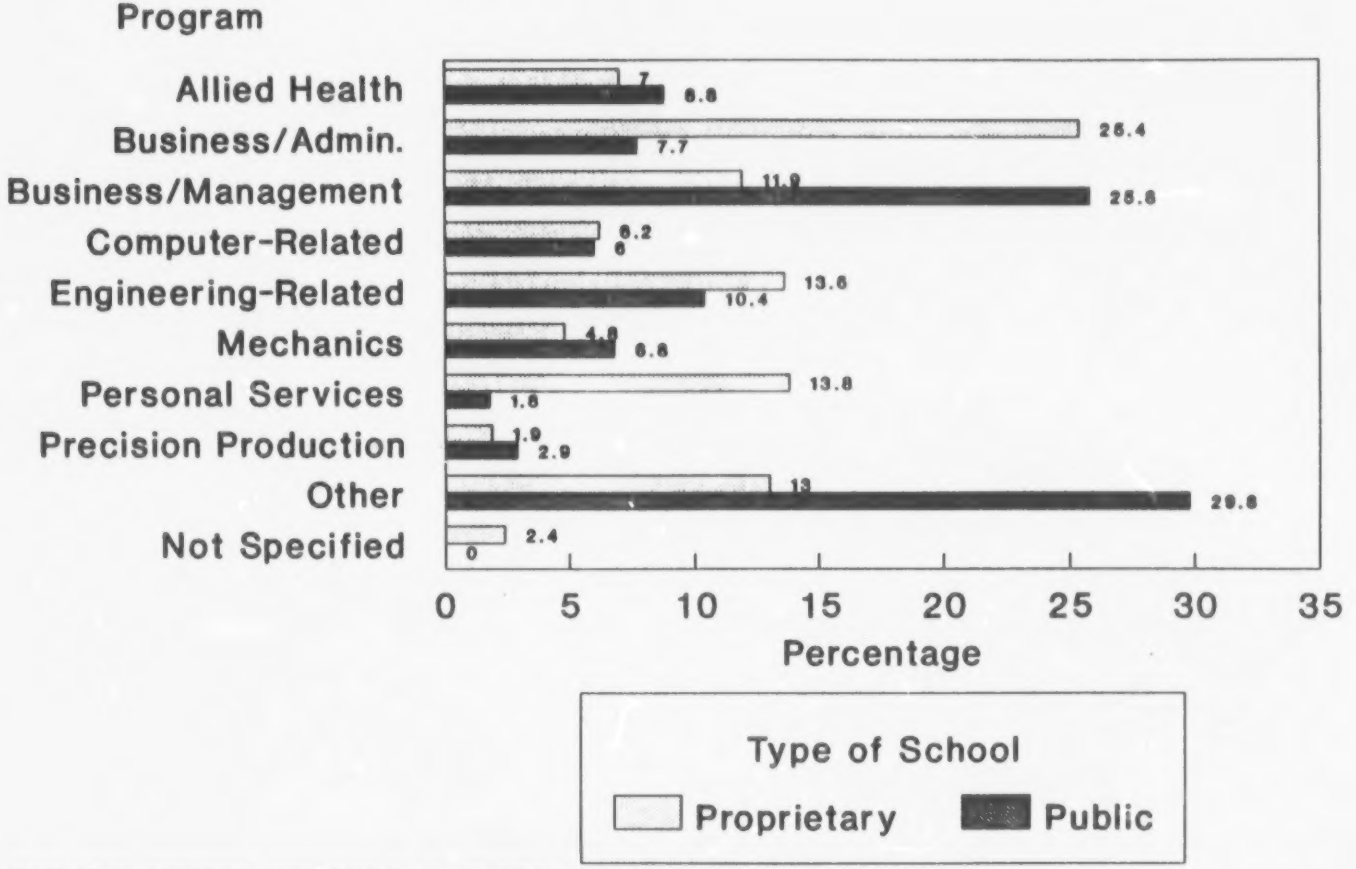
EXHIBIT 2-10
Educational Aspirations of Selected* Students at <4 Yr. Postsecondary Schools



* Full-time students enrolled in programs offered by Proprietary Schools.

Source: National Postsecondary Student Aid Survey, 1986, National Center For Education Statistics.

EXHIBIT 2-11
Course of Study of Selected* Students at <4 Yr. Postsecondary Schools



* Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center For Education Statistics.

schools, the program with the largest percentage of students was business/management (including accounting, and banking and finance).[12]

Business/administrative support continued to be the most popular less-than-two-year program among proprietary school students and business/management enrolled the largest percentage of two-to-three-year public school students (Exhibit 2-12). In less-than-two-year public school programs, more than half the students were enrolled in one of these areas: mechanics (21 percent), business/administrative support (18 percent), and allied health (18 percent). In two-to-three-year proprietary programs, 60 percent of the students were enrolled in engineering-related (23.6 percent), business/administrative support (21 percent), or business/management (19 percent) programs.

Financial Aid Participation

In this section, findings on financial aid participation -- receipt of student aid, Pell Grant and GSL program participation, and the influence of costs and financial aid on school selection-- are presented for students at public and proprietary schools. The results are presented separately for students whose family income is above and below the poverty level.

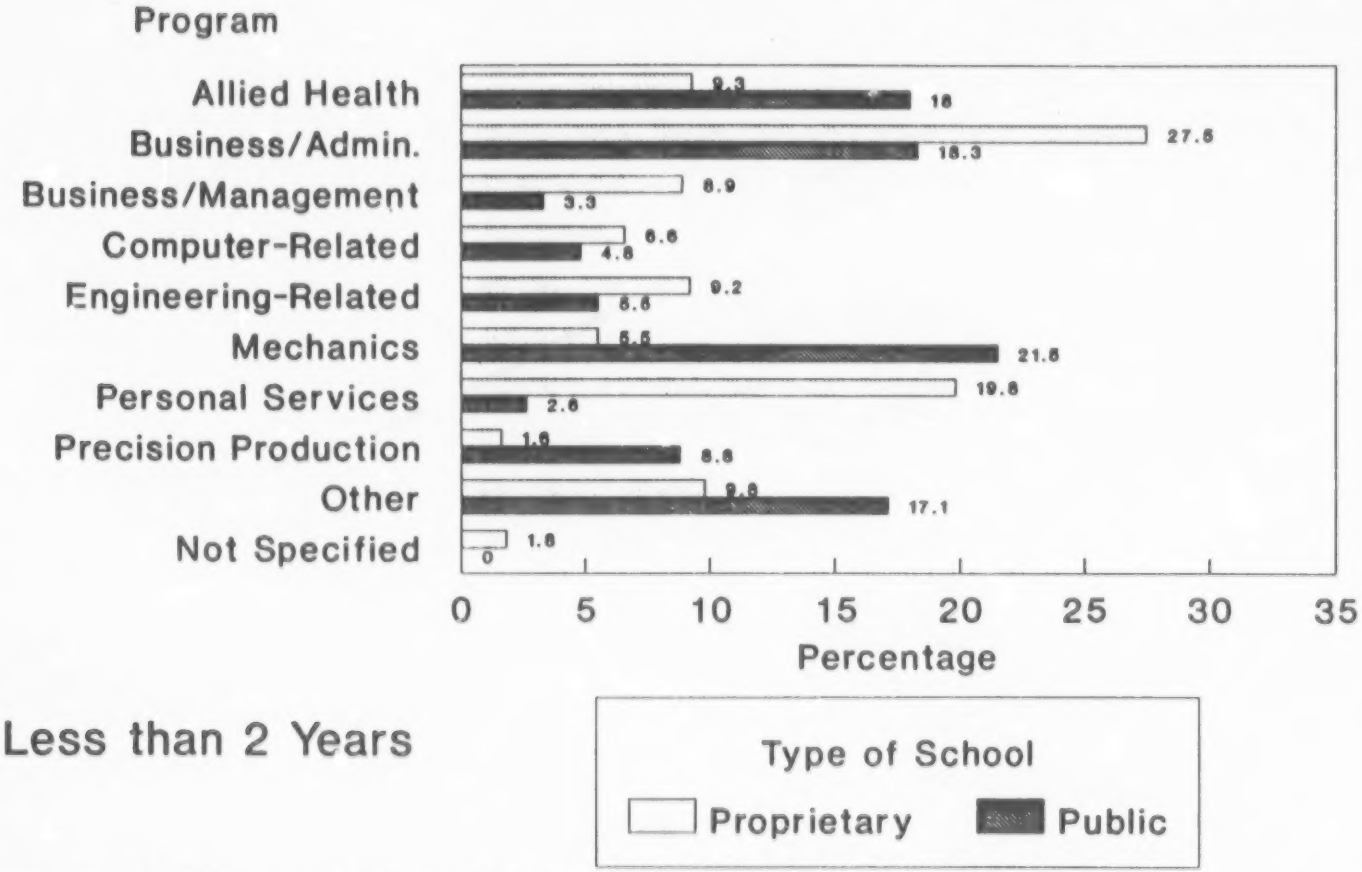
Aid Status

From the pie charts in Exhibit 2-13, it is quite clear that a much higher percentage of proprietary school students received aid than public school students. Approximately 87 percent of the students enrolled at proprietary schools received financial aid, compared to only 49 percent of the students at public schools.

The percent of proprietary school students who were aided is similar regardless of the students' poverty status. Even among students who were above the poverty level, 82 percent received financial aid at proprietary schools, compared to 39 percent in public schools. As would be expected, this difference was smaller for students whose family income was below the poverty level. However, even among these students, those in proprietary schools were more likely to

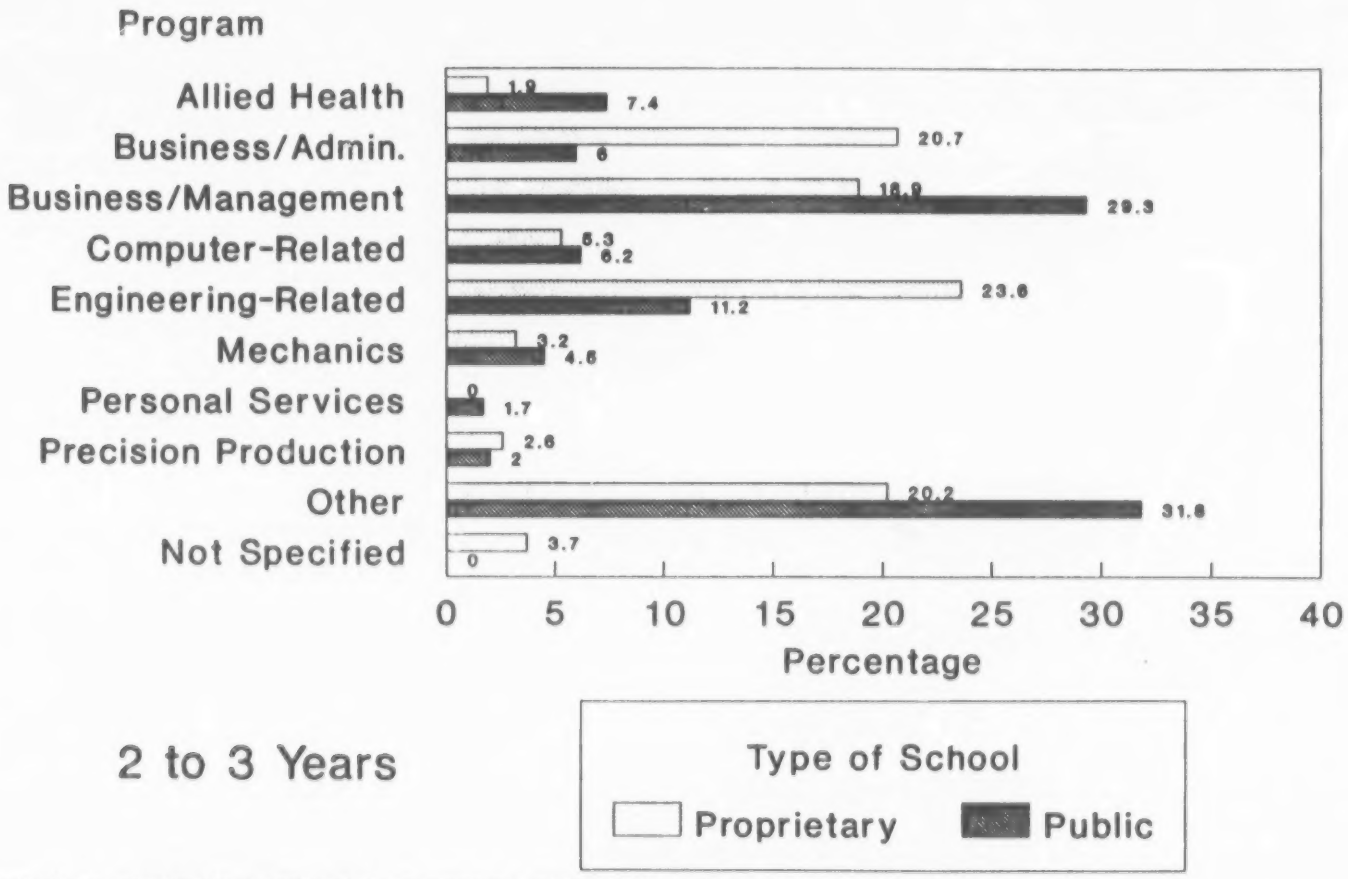
[12]Appendix B shows the courses of study within each of the categories. The categories were developed so that there would be at least 100 students in the sample in each category; thus the percent classified as "Other" is relatively high.

EXHIBIT 2-12
Course of Study of Selected*
Students at <4 Yr. Postsecondary Schools



* Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center For Education Statistics.

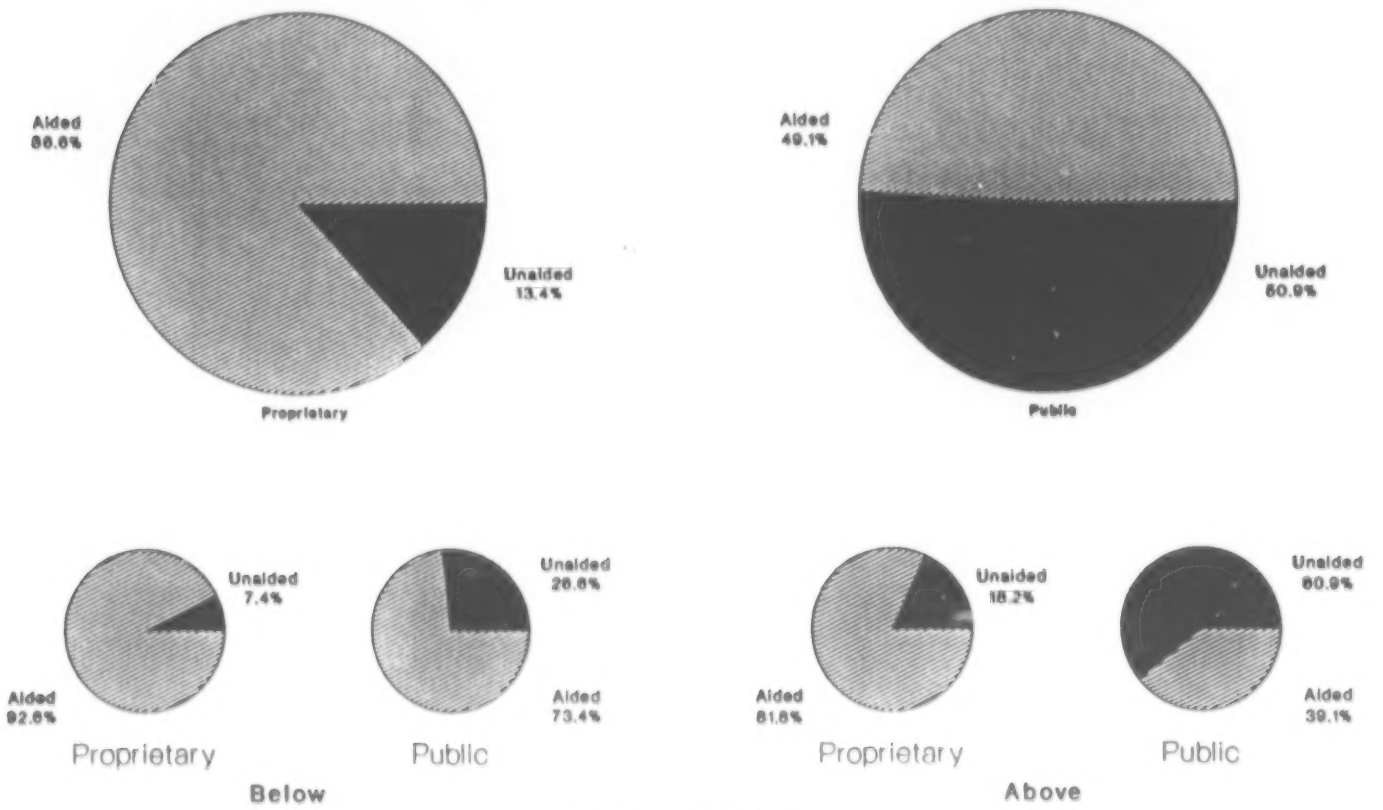
EXHIBIT 2-12 (Continued)
Course of Study of Selected•
Students at <4 Yr. Postsecondary Schools



• Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center For Education Statistics.

EXHIBIT 2-13

Aid Status of Selected• Students at Less-Than-Four-Year Postsecondary Institutions



•Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

receive aid. Among students in poverty, approximately 93 percent of proprietary school students and about three quarters of public school students were aided.

Pell Grant and GSL Program Participation

As Exhibit 2-14 illustrates, proprietary school students were more likely to participate in the Pell Grant and GSL programs than students at public schools. Sixty-eight percent of the students in proprietary schools received a GSL, compared to only 13 percent in public schools. Proprietary schools had a much higher GSL rate, among students above and below the poverty line. In fact, the proprietary school GSL rate was only slightly lower for students who were not below the poverty line than for students who were.

The Pell Grant rate was also higher for proprietary school students, with differences persisting when separating students according to their poverty status. Among students below the poverty level, the population most likely to be eligible, 79 percent of proprietary school students received a Pell Grant, compared to 58 percent of public school students.

Influence of Costs and Financial Aid on School Selection

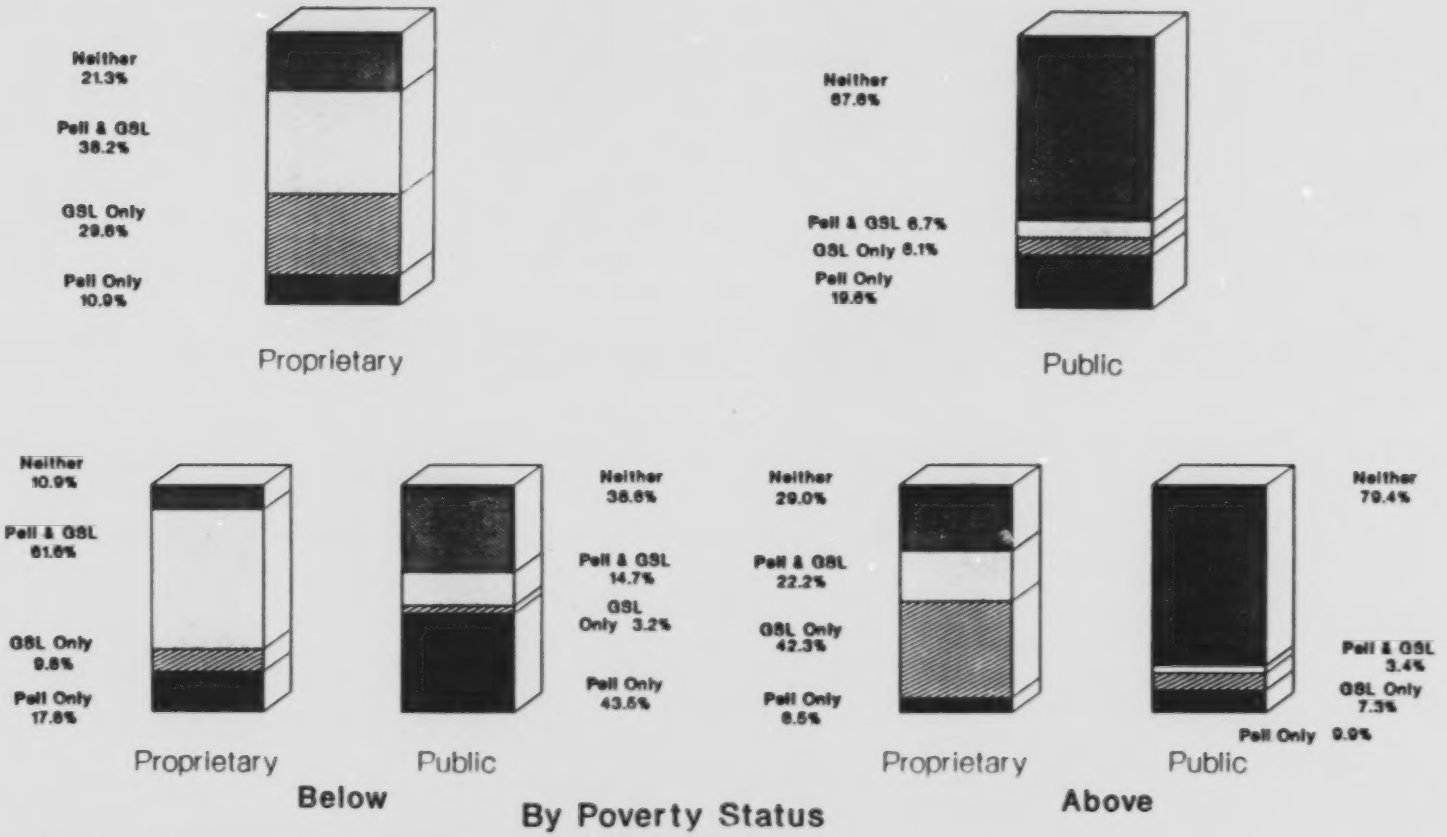
Although NPSAS does not provide direct information about whether students considered attending public and proprietary schools and subsequently chose one type of school, it does report the students' reasons for choosing the school they attended, including one that has been associated with the appeal of proprietary schools: financial aid. In addition, students were also asked whether the fact that tuition and other direct school expenses were low at the school was of importance in their decision to attend the school.

As shown in Exhibit 2-15, 60 percent of the proprietary school students reported that obtaining financial aid was very important in deciding to attend the school compared to approximately 34 percent of the public school students. In contrast, 56 percent of the public school students reported that lower tuition and costs at public schools was very important in their decision to attend their school, compared to only about a quarter of the proprietary school students.

Students in poverty responded quite similarly to the general population of students in the area of lower costs. Students below the poverty line were no more likely than students above it

EXHIBIT 2-14

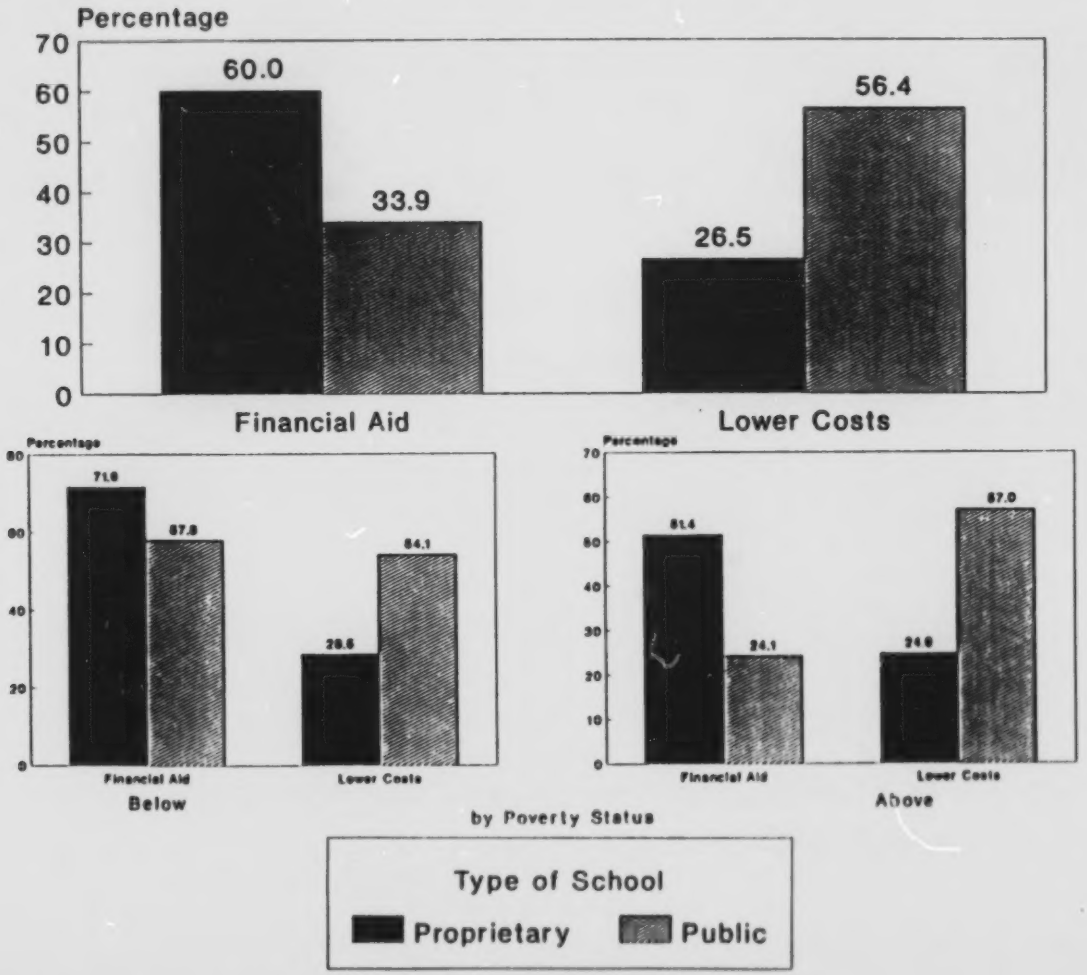
Pell/GSL Program Participation of Selected* Students at Less-Than-Four-Year Postsecondary Institutions



*Full-time students enrolled in programs offered by Proprietary Schools
Source: National Postsecondary Student Aid Survey, 1986, National Center for Education Statistics.

EXHIBIT 2-15

Reasons Cited by Selected* Students for Choosing Postsecondary Institutions



*Full-time students enrolled in programs offered by Proprietary Schools.
Source: National Postsecondary Student Aid Survey, 1986. National Center for Education Statistics

to report that lower costs were a very important reason for selecting their school. However, students below the poverty line were more attracted by the availability of financial aid than students above it in both proprietary and public schools.

Summary

Full-time students at proprietary schools were more likely to have incomes below the poverty line, and to be female, financially independent, and nonwhite than full-time students in less-than-four-year public schools who were enrolled in similar courses of study. In addition, they were likely to be slightly older. It is important to note that although there was a higher percentage of students below the poverty line in proprietary schools than in public schools, both school types enrolled a sizeable percentage of such students. In fact, the percentage of public school students who had family incomes below the poverty level was considerably higher than the poverty rate in the population among persons of similar age.

Proprietary and public school students also differed on their educational characteristics. Proprietary school students were more likely to lack a high school credential and to expect that their highest educational credential would be a vocational one. Only half as many proprietary school students as public school students expected to receive a bachelor's degree. Although business-related courses had the largest share of enrollment in both types of schools, proprietary school students were more likely to be enrolled in administrative support and secretarial programs (i.e., the business/administrative support category), whereas students in public schools tended to enroll in business and management, accounting, and banking and finance (i.e., the business/management category).

Many of the differences between proprietary and public school students disappeared when comparisons were made between programs of similar duration. About 70 percent of the students in the proprietary sector were attending less-than-two-year programs; about 86 percent of the students in the public sector were attending two-to-three-year programs. The results suggest that shorter programs at both types of schools appeal to independent and older students and to those with incomes below the poverty line. Generally, public school students in less-than-two-year

programs were similar in income, dependency status, and age to proprietary school students. They also had similar educational aspirations. However, some differences persisted between proprietary and public school students in short-term programs. Proprietary schools enrolled a much larger percentage of female students and their students were more likely not to have a high school credential.

In two-to-three-year programs, proprietary school students were similar to those in public schools with respect to poverty and dependency status, age, gender, and high school credentials. However, proprietary school students had lower family incomes and were less likely to expect to receive a bachelor's degree than those in public schools.

One difference between proprietary and public school students that persisted in both less-than-two-year and two-to-three-year programs was in the percent of students who were black. Regardless of program length, proprietary school students were twice as likely to be black than public school students.

There were very large differences between students in the two types of school in their participation in the Pell and GSL programs. About half of the proprietary school students received Pell Grants, compared to only a quarter of the public school students. Differences in GSL participation were even larger, with the rate for proprietary school students about five times the rate for public school students. The availability of this aid was a major factor in attracting students to proprietary schools. More than half of proprietary students reported that it was a "very important" reason for choosing the school they attended. In contrast, public school students were attracted by the idea of "lower costs," with more than half reporting it as "very important" for their school selection.

Differences in financial aid participation of students in proprietary and public schools persisted regardless of whether the students' family incomes were above or below the poverty level. Students below the poverty line were more likely to receive aid and more likely to receive Pell Grants and GSLs in proprietary schools. Some of these differences undoubtedly are related to the fact that tuition is considerably higher at proprietary schools, thus creating more need for aid.

CHAPTER 3

A MULTIVARIATE ANALYSIS OF FACTORS ASSOCIATED WITH ATTENDING A PROPRIETARY SCHOOL

The results presented in Chapter 2 indicate that a number of student background characteristics are associated with attendance at proprietary and less-than-four-year public schools. In this chapter, we build on these findings by reporting the results of three multivariate models.

The first includes only demographic and socioeconomic characteristics of students. Many of these characteristics are interrelated and the model investigated which ones are associated with attending a proprietary school independently of the others. For example, there is a correlation between having an income below the poverty line and being financially independent, and the results address the question of whether or not proprietary school students are more likely to be poor regardless of whether they are independent or dependent.

To address the issue of whether the short-term nature of most proprietary school programs can account for differences in student characteristics at proprietary and public schools, the second model adds an indicator of the length of the students' programs. If similar students attend less-than-two-year programs at proprietary and public schools--and likewise, similar students attend two-to-three year programs at both types of schools--then, the demographic and socioeconomic characteristics will not be related to proprietary school attendance when length of the program is included in the model.

The third model addresses the importance of financial aid and low tuition in the student's choice of school by adding indicators of whether each of these reasons was very important to the student. This allows an assessment of whether or not differences in the type of school attended

that are associated with background characteristics and length of program are independent of the importance of financial aid and low tuition in the students' choice of schools.

Following a brief description of logistic regression, the statistical technique used for the analysis, we present the results of the analysis.

Logistic Regression

The purpose of our multivariate analysis was to assess the relative influence of various factors on whether students choose to attend a proprietary school for full-time training in an area offered by these schools. Logistic regression, the statistical method used for the analysis, involves the same principles of statistical control as standard linear regression but assumes a mathematical form for the relationship that is appropriate when the model has a zero/one outcome. This form is given in the equation:

$$P = 1/[1+\exp(-XB)],$$

where P is the probability of the outcome (e.g., attending a proprietary school), "exp" denotes the base of the natural logarithm, X are the predictor variables, and B are the regression coefficients estimated by the model. The coefficients are estimated with maximum likelihood techniques (Maddala, 1983).

Results

Descriptive Statistics

Exhibit 3-1, which lists the variables included in the analyses and the mean of each one, shows that about a third of the students in the sample attended a proprietary school. Exhibit 3-2 shows the correlations among all the variables in the analysis. The correlations between attending a proprietary school and the predictor variables are analogous to the results reported in

EXHIBIT 3-1

Variable Description and Means for Logit Model of Proprietary School Attendance

		Mean
Attends proprietary school	Equals 1 if respondent attends proprietary school; zero otherwise	.329
Black	Equals 1 if respondent is black; zero otherwise	.151
Hispanic	Equals 1 if respondent is Hispanic; zero otherwise	.093
Asian	Equals 1 if respondent is Asian; zero otherwise	.053
Poverty	Equals 1 if student's family income is below poverty level*; zero otherwise	.313
Male	Equals 1 if respondent is male; zero otherwise	.414
Independent	Equals 1 if respondent is independent; zero otherwise	.428
High school diploma	Equals 1 if respondent has a high school diploma; zero otherwise	.818
GED	Equals 1 if respondent has a GED; zero otherwise	.105
less-than-two-year school	Equals 1 if respondent is enrolled in a less-than-two-year school; zero otherwise	.321
Financial Aid	Equals 1 if received financial aid and has reported it as a very important reason for choosing school; zero otherwise	.442
Lower Cost	Equals 1 if lower cost reported as a very important reason for choosing school; zero otherwise	.478

*Based on family income and household size

EXHIBIT 3-2

Correlations Among Variables in Multivariate Model of Proprietary School Attendance

	Black	Hispanic	Asian	Poverty	Male	Indep.	H.S. Dipl.	GED	< 2 Year	Lower Cost	Get Aid
Attends Proprietary School	.14	.08	-.09	.12	-.10	.14	-.12	.04	.57	-.29	.25
Black		-.14	-.10	.19	-.06	.06	-.06	.01	.09	-.01	.12
Hispanic			-.08	.07	-.03	.00	-.10	.06	.10	-.03	.06
Asian				.11	.12	.04	-.05	.01	-.08	-.01	.01
Poverty					-.11	.27	-.17	.15	.17	-.03	.31
Male						-.12	.04	-.03	-.11	-.07	-.13
Independent							-.25	.23	.21	-.09	.19
H.S. diploma								-.73	-.19	-.05	-.12
GED									.08	-.02	-.08
< 2 year										-.14	.21
Lower Cost											.07

Chapter 2: proprietary school attendance was positively correlated with being black, Hispanic, poor, independent, having a GED, having an income below the poverty line, attending a less-than-two-year school, and the importance of financial aid in choosing a school; it was negatively correlated with being Asian, male, having a high school diploma, and the importance of lower costs in choosing a school.

Multivariate Analyses

Exhibit 3-3 reports the coefficients from each of the models. In the model including only background characteristics (column 1), each of the characteristics was independently related to proprietary school attendance.[13] Adding the indicator of attending a less-than-two-year school (column 2), the only background characteristics that continued to affect the chance of proprietary school attendance were being black (positively associated) and Asian (negatively associated). In the third model (column 3), these effects and the effect of attending a less-than-two-year school remained stable while the reasons for school selection also had a statistically significant effect on whether the student attended a proprietary school.

These coefficients are quite difficult to interpret in their current form because they affect the probabilities of attending a proprietary school through a complex and nonintuitive mathematical relationship. To alleviate this problem, we converted the regression coefficients into impact estimates that are more easily understood. These estimates (shown in Exhibit 3-4) represent the difference in probabilities of attending a proprietary school for two individuals who differ on one identified characteristic but are at the average on all other factors in the model. An example of how they can be interpreted is that a black student who was average on other

---

[13] These models were estimated without making special adjustments to standard errors for the complex sampling design; thus, the p statistics must be interpreted very cautiously. Only p values of .005 and smaller are considered statistically significant. These analyses included the same sample of students used for the analyses reported in Chapter Two.

EXHIBIT 3-3

Logistic Regression Coefficients for Model of Proprietary School Attendance (P Statistics in Parentheses)

	(1)	(2)	(3)
Black	.653 (.000)	.706 (.000)	.691 (.000)
Hispanic	.474 (.000)	.283 (.025)	.204 (.143)
Asian	-1.055 (.000)	-.647 (.003)	-.674 (.004)
Poor	.299 (.000)	.047 (.600)	-.158 (.107)
Male	-.291 (.000)	-.213 (.008)	-.271 (.002)
Independent	.375 (.000)	.063 (.453)	-.146 (.114)
High school diploma	-.837 (.000)	-.248 (.079)	-.289 (.071)
GED	-.727 (.000)	-.355 (.044)	-.352 (.075)
Less-than-two-year school		2.60 (.000)	2.56 (.000)
Reason for choosing school			
Financial Aid			1.11 (.000)
Lower cost			-1.60 (.000)

EXHIBIT 3-4

Percentage Point Change in the Probability of Proprietary School Attendance*

	(1)	(2)	(3)
Black	15	15	15
Hispanic	11	NS**	NS
Asian	-17	-9	-9
Poor	7	NS	NS
Male	-6	NS	NS
Independent	8	NS	NS
High school diploma	-20	NS	NS
GED	-17	NS	NS
Less-than-two-year program		55	53
Reason for choosing school			
Financial aid very important			8
Lower costs very important			-17

*These estimates are based on a logistic regression model predicting proprietary school attendance among students at proprietary and public less-than-four-year schools who were enrolled in courses of study offered by proprietary schools. The estimates give the change in probability associated with each independent variable for students who are at the sample mean on other characteristics in the model. For black, Hispanic and Asian, the estimates report the change in probability associated with being in that race category compared to white students.

**Not statistically significant.

characteristics in the model was 15 percentage points more likely to attend a proprietary school than a white student who was average on other characteristics.

In the first model, high school credentials had the largest impact on proprietary enrollment. Students with a regular diploma or a GED were from 17 to 20 percentage points more likely not to attend a proprietary school, controlling for other characteristics. The impact was in the same size range for black students and Asian students. Black students were 15 percentage points more likely to attend proprietary schools and Asians 17 percentage points less likely. Students with an income below the poverty line, independents, and Hispanics were also more likely to attend proprietary schools.

In the second model, the impact of attending a less-than-four-year school was very large--55 percentage points--and the only background characteristics that remained statistically significant are being black and Asian. Moreover, the size of these two estimates remained quite stable, indicating that the tendency of blacks to select proprietary schools and Asians to select public institutions was independent of whether or not they enroll in a less-than-two-year school.

The impact estimates for the third model indicated that financial aid does attract students to proprietary schools and lower costs attract students to public institutions. In addition, even with these controls, black students and those choosing a less-than-two-year school were more likely and Asians were less likely to enroll in a proprietary school.

Discussion

The results of the multivariate analysis confirm our earlier findings suggesting that the fact that the poverty rate was higher among proprietary school students was related to the tendency of those students to enroll in less-than-two-year programs, regardless of whether they are proprietary

or public. This certainly is not surprising; one would expect that those with fewer financial resources would want to complete their training as quickly as possible.

Another factor consistently associated with attending a proprietary school was students' race: students who are black were more likely to select proprietary schools, all other factors being equal. The size of this effect was essentially the same across the three models, indicating that it was independent of the length of the students' programs and their reasons for school selection. It is possible that proprietary schools are more conveniently located to neighborhoods with high concentrations of black youth than less-than-two-year public institutions.

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APPENDIX A

Annual Pell Grant Recipients and Stafford Loan Volume

by Type of Institution

ANNUAL PELL GRANT RECIPIENTS BY TYPE OF INSTITUTION
ACADEMIC YEARS 1973-74 -- 1988-89

	Number of Recipients (%)				
Academic Year	Public 4 Yr.	Private 4 Yr.	Public 2 Yr.	Private 2 Yr.	Proprietary
1973-74	41.1	22.2	24.8	4.0	7.9
1974-75	41.0	20.2	27.2	3.1	8.5
1975-76	38.4	17.5	31.8	2.9	9.4
1976-77	41.6	17.7	29.7	2.2	8.8
1977-78	42.0	17.8	29.4	2.0	8.8
1978-79	39.8	20.1	27.8	2.3	10.0
1979-80	40.3	21.5	26.1	2.4	9.7
1980-81	38.9	20.5	27.5	2.5	10.6
1981-82	37.5	20.0	27.8	2.4	12.3
1982-83	35.4	19.3	27.5	2.7	15.1
1983-84	34.2	17.9	27.9	2.6	17.4
1984-85	34.2	17.4	26.8	2.4	19.2
1985-86	33.4	16.9	26.0	2.4	21.3
1986-87	32.2	16.0	25.8	2.2	23.8
1987-88	31.7	15.7	24.9	2.2	25.5
1988-89	32.9	16.2	25.3	2.4	23.2

	Dollar Amount of Grants (%)				
Academic Year	Public 4 Yr.	Private 4 Yr.	Public 2 Yr.	Private 2 Yr.	Proprietary
1973-74	41.4	22.4	25.1	4.0	7.1
1974-75	40.2	21.2	26.7	3.2	8.7
1975-76	39.4	22.1	26.4	3.0	9.1
1976-77	43.3	22.3	23.6	2.6	8.2
1977-78	43.1	21.0	24.5	2.4	9.0
1978-79	39.5	24.3	23.2	2.6	10.4
1979-80	39.9	25.5	21.5	2.8	10.3
1980-81	38.0	24.6	22.1	2.9	12.4
1981-82	37.9	23.4	21.9	2.7	14.1
1982-83	35.5	23.0	21.1	3.0	17.4
1983-84	35.0	21.0	21.3	2.8	19.9
1984-85	35.9	20.4	20.4	2.6	20.7
1985-86	35.3	19.2	20.6	2.5	22.4
1986-87	34.2	18.3	20.3	2.3	24.9
1987-88	33.3	17.7	20.0	2.4	26.6
1988-89	34.3	17.7	21.1	2.5	24.4

Source: Data were obtained from Pell End-of-Year Reports prepared by U.S. Department of Education, OPE/OSFA/DPPD, Pell Grant Branch, Analysis Section. Annual percentages by institution type were calculated on the entire universe of Pell Recipients for whom institution type data were available. The number of cases upon which percentages are based are as follows: 1973-74=182,710; 1974-75=572,631; 1975-76=1,215,271; 1976-77=1,922,874; 1977-78=1,846,080; 1978-79=1,830,141; 1979-80=2,517,970; 1980-81=2,707,932; 1981-82=2,708,722; 1982-83=2,522,238; 1983-84=2,758,339; 1984-85=2,745,462; 1985-86=2,813,224; 1986-87=2,659,200; 1987-88=2,881,547; 1988-89=3,198,286. Academic years are from July 1 through June 30.

Prepared by: U.S. Department of Education, OPE/OSFA/DPPD, Guaranteed Student Loan Branch, Analysis Section

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ANNUAL STAFFORD LOAN VOLUME BY TYPE OF INSTITUTION
FY 1968 - FY 1988

Number of Borrowers (%)

Fiscal Year	Public 4 Yr.	Private 4 Yr.	Public 2 Yr.	Private 2 Yr.	Proprietary
1968	50.7	41.9	2.2	2.9	2.3
1969	45.0	43.6	4.8	1.1	5.5
1970	51.1	38.5	3.2	1.7	5.5
1971	49.7	39.7	4.7	2.2	3.7
1972	51.3	37.6	4.6	2.4	4.1
1973	48.4	36.9	5.9	3.0	5.8
1974	46.8	40.2	4.6	2.7	5.7
1975	46.6	39.2	5.3	2.9	6.0
1976	45.6	38.9	5.9	3.4	6.2
1977	43.5	40.0	5.5	2.9	8.1
1978	43.3	41.5	5.0	2.8	7.4
1979	44.0	41.3	5.6	2.1	7.0
1980	45.5	37.2	7.6	2.2	7.5
1981	46.8	33.7	9.2	2.5	7.8
1982	41.7	32.6	10.6	2.4	12.7
1983	39.5	30.4	11.0	2.6	16.5
1984	38.5	27.1	11.1	2.3	21.0
1985	37.4	25.9	10.5	2.1	24.1
1986	30.6	23.7	13.2	3.2	29.3
1987	28.8	23.2	9.8	3.0	35.2
1988	30.6	25.1	8.0	1.9	34.4

Dollar Amount of Loans (%)

Fiscal Year	Public 4 Yr.	Private 4 Yr.	Public 2 Yr.	Private 2 Yr.	Proprietary
1968	48.2	43.8	2.3	3.3	2.4
1969	44.5	47.5	1.5	1.3	5.2
1970	49.7	42.2	1.7	1.8	4.6
1971	48.0	43.7	2.6	2.2	3.5
1972	48.6	41.2	2.8	2.5	4.9
1973	45.1	43.6	3.3	2.8	5.2
1974	42.2	47.6	2.4	2.7	5.1
1975	43.7	44.5	3.7	3.5	4.6
1976	43.1	44.4	3.2	4.0	5.3
1977	40.6	46.3	3.8	2.6	6.7
1978	40.8	47.6	3.6	2.5	5.6
1979	41.5	46.6	3.9	1.8	6.2
1980	44.1	42.0	5.8	2.0	6.1
1981	45.7	38.4	7.4	2.2	6.3
1982	41.5	37.1	8.6	2.1	10.7
1983	39.1	35.2	9.1	2.3	14.3
1984	38.3	31.8	9.0	2.1	18.8
1985	37.2	30.1	8.5	1.9	22.3
1986	30.7	27.0	11.4	3.3	27.6
1987	27.1	27.1	8.0	2.9	34.9
1988	30.6	32.0	5.8	1.7	29.9

Source: Estimates for borrowers who had loans guaranteed from FY 1968 through FY 1985 are based on a random sample of 50,000 Stafford borrowers who had entered repayment as of 9/30/88. The number of cases upon which percentages are based are as follows: 1968=136; 1969=723; 1970=343; 1971=448; 1972=585; 1973=597; 1974=633; 1975=876; 1976=1,397; 1977=1,634; 1978=2,184; 1979=3,790; 1980=6,634; 1981=10,357; 1982=9,035; 1983=9,576; 1984=10,167; 1985=10,039. FY 1985 figures were reestimated to account for the fact that a portion of borrowers who guaranteed loans in FY 1985 and attended four year institutions had not yet entered repayment by 9/30/88. FY 1986 estimates were based on a random sample of 18,531 borrowers whose beginning period of loan was between 10/1/85 and 9/30/86, while FY 1987 estimates were derived from a random sample of 16,872 borrowers whose beginning period of loan was between 10/1/86 and 9/30/87. FY 1988 data consist of the entire population of borrowers who guaranteed loans during FY 1988 and who possessed one of the five institutional type designations (N=2,857,050). All fiscal years from FY 1968 through FY 1975 are from July 1 through June 30; FY 1976 includes a transition quarter (from 7/1/76 - 9/30/76); fiscal years from FY 1977 through FY 1988 are from October 1 through September 30. Percentages were not computed for FY 1966 and FY 1967 due to insufficient sample size.

Prepared by: U. S. Department of Education, OPE/OSFA/DPPD, Guaranteed Student Loan Branch, *Analysis Section*

APPENDIX B

Courses of Study of Proprietary School Students in NPSAS Sample

1. Business/Management

   - Business and Management
   - Accounting
   - Banking and Finance

2. Business/Administrative Support

   - Business (Administrative Support)
   - Secretarial and Related Programs

3. Computer-Related

   - Computer and Information Sciences
   - Computer Programming
   - Data Processing

4. Engineering and Related

   - Engineering
   - Electrical Electronics and Communications Engineering
   - Mechanical Engineering
   - Engineering and Engineering Related Technologies

5. Allied Health

   - Allied Health
   - Practical Nursing

6. Mechanics and Repairers

   - Mechanics and Repairers

7. Precision Production

   - Precision Production

8. Consumer, Personal, and Miscellaneous Services

APPENDIX B (Continued)

Courses of Study of Proprietary School Students in NPSAS Sample

9. Other

- Renewable Natural Resources
- Architecture and Environmental Design
- Marketing and Distribution
- Communications
  - Communications
  - Communications Technologies
- Education
  - Education
  - Pre-elementary Education
- Health Sciences
  - Health Sciences
  - Nursing
- Home Economics
  - Home Economics
  - Vocational Home Economics
- Legal Assisting
- Liberal/General Studies
- Science Technologies
- Protective Services
- Construction Trades
- Transportation and Material Moving
- Visual and Performing Arts
- Fine Arts

APPENDIX C

Unweighted Numbers of Cases

	Proprietary	Public
Total	3,317	1,537
Length of Program		
Less-Than-Two-Year	2,233	451
Two-to-Three-Year	1,084	1,086
Poverty Status		
Below Poverty	1,239	466
Above Poverty	1,898	1,048
Missing	180	23

APPENDIX D

TABLES

Standard errors shown were computed using the SAS Proc, Wesvar, and incorporate information about the complex sampling frame of the NPSAS survey.

TABLE D-1

Poverty Status of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Below	39.5 (2.3)	27.5 (1.4)	44.2 (2.2)	40.3 (5.0)	29.1 (3.0)	25.4 (1.4)
Above	60.5 (2.3)	72.5 (1.4)	55.8 (2.2)	59.7 (5.0)	70.9 (3.0)	74.5 (1.4)
TOTAL	100	100	100	100	100	100

TABLE D-2a

Family Income of Selected Dependent Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
< 15,000	38.5 (2.8)	26.0 (1.5)	42.9 (3.1)	33.9 (6.1)	31.4 (3.2)	25.1 (1.5)
15,001 - 25,000	20.3 (1.0)	20.1 (1.4)	21.2 (1.4)	25.2 (3.2)	18.9 (1.6)	19.6 (1.4)
25,001 - 40,000	25.4 (1.9)	27.1 (2.4)	23.3 (2.3)	26.3 (4.1)	28.8 (2.5)	27.2 (2.6)
40,001 +	15.9 (1.5)	26.8 (2.2)	12.6 (1.4)	14.6 (3.6)	21.0 (2.5)	28.1 (2.4)
TOTAL	100	100	100	100	100	100

TABLE D-2b

Family Income of Selected Independent Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
< 4,000	28.5	27.6	29.4	31.2	25.4	26.7
	(1.8)	(2.0)	(2.0)	(4.6)	(3.8)	(2.0)
4,001 - 10,000	31.5	23.4	32.3	30.1	28.9	21.7
	(1.7)	(2.1)	(1.7)	(4.2)	(2.9)	(2.2)
10,001 - 20,000	23.0	21.3	22.4	20.1	24.7	21.5
	(1.2)	(2.0)	(1.4)	(2.0)	(2.7)	(2.4)
20,001 +	17.0	27.8	15.9	18.6	21.0	30.0
	(1.9)	(2.3)	(1.8)	(4.2)	(4.0)	(2.5)
TOTAL	100	100	100	100	100	100

TABLE D-3

Gender of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Male	34.1	44.9	28.1	47.2	47.9	44.6
	(3.4)	(1.5)	(2.7)	(4.0)	(6.1)	(1.6)
Female	65.9	55.1	71.9	52.8	52.1	55.4
	(3.4)	(1.5)	(2.7)	(4.0)	(6.1)	(1.6)
TOTAL	100	100	100	100	100	100

TABLE D-4

Race of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
American Indian	1.0	1.2	1.3	.5	.4	1.3
	(.2)	(.3)	(.3)	(.3)	(.2)	(.4)
Asian	2.5	6.7	2.5	3.1	2.5	7.3
	(.4)	(.9)	(.5)	(1.2)	(.5)	(.9)
Black	22.3	11.6	23.1	12.3	20.5	11.5
	(2.9)	(2.0)	(3.6)	(3.5)	(2.8)	(2.1)
Hispanic	12.5	7.8	14.9	9.7	7.0	7.5
	(1.9)	(1.5)	(2.5)	(2.6)	(1.4)	(1.5)
White	61.7	72.7	58.3	74.3	69.5	69.0
	(2.9)	(2.3)	(3.5)	(5.5)	(3.3)	(1.6)
TOTAL	100	100	100	100	100	100

TABLE D-5

Age as of 12/31/1986 of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
<19 years	27.6	31.8	24.8	20.6	34.1	33.6
	(1.4)	(1.8)	(1.0)	(3.5)	(2.8)	(1.9)
19-22 years	22.5	24.7	20.8	18.0	26.6	25.8
	(0.9)	(1.5)	(1.0)	(2.4)	(1.9)	(1.7)
23-28 years	25.3	20.2	25.9	28.5	24.1	18.9
	(1.3)	(0.9)	(1.4)	(3.0)	(2.4)	(1.0)
29+ years	24.5	23.3	28.5	33.0	15.3	21.8
	(1.7)	(1.8)	(1.6)	(2.7)	(1.8)	(1.9)
TOTAL	100	100	100	100	100	100

TABLE D-6

Dependency Status of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Dependent	47.2 (1.9)	62.2 (1.7)	41.3 (1.7)	44.2 (3.6)	60.8 (2.3)	65.0 (1.8)
Independent	52.8 (1.9)	37.8 (1.7)	58.7 (1.7)	55.8 (3.6)	39.2 (2.3)	35.0 (1.8)
TOTAL	100	100	100	100	100	100

TABLE D-7

High School Graduation Status of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
H.S. Diploma	74.9 (1.2)	85.1 (1.3)	69.8 (1.4)	74.1 (3.8)	86.6 (1.2)	86.9 (1.3)
GED	12.5 (1.1)	9.6 (0.8)	14.3 (1.5)	14.5 (2.1)	8.3 (1.2)	8.8 (0.8)
Certificate	3.4 (0.3)	3.3 (0.6)	3.8 (0.4)	5.3 (1.6)	2.5 (0.6)	2.9 (0.7)
Did not complete	9.2 (0.6)	2.0 (0.4)	12.0 (0.8)	6.1 (1.8)	2.5 (0.6)	1.4 (0.4)
TOTAL	100	100	100	100	100	100

TABLE D-8

Degree Aspirations of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
< 2 years vocational	28.6 (1.6)	8.2 (1.5)	37.1 (1.5)	37.0 (4.7)	8.8 (1.2)	3.7 (1.1)
2 + years vocational	9.5 (.9)	6.1 (1.1)	6.7 (.6)	16.7 (2.7)	16.0 (1.9)	4.5 (.8)
< 2 years college	8.0 (.6)	3.4 (.7)	9.2 (.7)	8.6 (1.8)	5.1 (.8)	2.6 (.7)
2 + years college	19.3 (.9)	24.7 (1.2)	15.0 (1.1)	13.8 (2.5)	29.4 (1.8)	26.4 (1.1)
B.A. or higher	26.7 (1.2)	54.0 (1.9)	22.2 (1.5)	18.7 (2.8)	36.8 (1.9)	59.5 (1.8)
Missing	7.9 (.6)	3.5 (.6)	9.6 (.8)	5.5 (1.2)	3.9 (.6)	3.2 (.7)
TOTAL	100	100	100	100	100	100

TABLE D-9

Course of Study of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Length of Course of Study			
			< 2 Years		2 to 3 Years	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Allied Health	7.0 (1.7)	8.8 (1.0)	9.3 (2.4)	18.0 (3.0)	1.9 (.5)	7.4 (1.0)
Business/Administrative Support	25.4 (2.7)	7.7 (1.2)	27.5 (3.3)	18.3 (3.6)	20.7 (3.3)	6.0 (.9)
Business/Management	11.9 (1.9)	25.8 (1.9)	8.9 (2.2)	3.3 (1.5)	18.9 (4.0)	29.3 (1.8)
Computer-related	6.2 (1.0)	6.0 (.8)	6.6 (1.1)	4.8 (1.5)	5.3 (1.1)	6.2 (.9)
Engineering-related	13.6 (3.1)	10.4 (1.0)	9.2 (1.6)	5.5 (1.5)	23.6 (7.7)	11.2 (1.1)
Mechanics	4.8 (1.0)	6.8 (1.0)	5.5 (1.3)	21.5 (3.8)	3.2 (1.2)	4.5 (.9)
Personal Services	13.8 (2.1)	1.8 (.4)	19.8 (3.0)	2.6 (1.3)	0.0 (0.0)	1.7 (.5)
Precision Production	1.9 (.7)	2.9 (.5)	1.6 (.6)	8.8 (2.0)	2.6 (1.3)	2.0 (.4)
Other	13.0 (2.2)	29.8 (1.6)	9.8 (2.4)	17.1 (2.8)	20.2 (3.9)	31.8 (2.0)
Not Specified	2.4 (.7)	0.0 (0.0)	1.8 (1.0)	0.0 (0.0)	3.7 (.8)	0.0 (0.0)
TOTAL	100	100	100	100	100	100

TABLE D-10

Aid Status of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Poverty Status			
			Below Poverty Level		Above Poverty Level	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Unaided	13.4 (1.2)	50.9 (1.9)	7.4 (1.0)	26.6 (2.9)	18.2 (1.8)	60.9 (2.0)
Aided	86.6 (1.2)	49.1 (1.9)	92.6 (1.0)	73.4 (2.9)	81.8 (1.8)	39.1 (2.0)
TOTAL	100	100	100	100	100	100

TABLE D-11

Pell Grant and GSL Participation of Selected Students in Less-Than-Four-Year Postsecondary Institutions (percent and standard error)

	By School Type		By Poverty Status			
			Below Poverty Level		Above Poverty Level	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Pell Only	10.9 (1.1)	19.6 (1.6)	17.6 (1.8)	43.5 (3.7)	6.5 (.8)	9.9 (1.0)
GSL Only	29.6 (2.2)	6.1 (.6)	9.8 (1.2)	3.2 (1.1)	42.3 (2.7)	7.3 (.8)
Pell and GSL	38.2 (2.1)	6.7 (.8)	61.6 (2.3)	14.7 (2.1)	22.2 (1.7)	3.4 (.8)
Neither	21.3 (1.7)	67.6 (1.9)	10.9 (1.1)	38.6 (3.9)	29.0 (2.5)	79.4 (1.5)
TOTAL	100	100	100	100	100	100

TABLE D-12

Reasons Cited by Selected Students as Very Important for Choosing Postsecondary Institutions (percent and standard error)

Level	By School Type		By Poverty Status			
			Below Poverty Level		Above Poverty	
	Proprietary	Public	Proprietary	Public	Proprietary	Public
Financial Aid	60.0	33.9	71.6	57.8	51.4	24.1
	(1.3)	(1.6)	(1.6)	(3.0)	(1.7)	(1.6)
Lower Costs	26.5	56.4	28.5	54.1	24.6	57.0
	(1.3)	(1.4)	(2.0)	(3.2)	(1.3)	(1.6)

THE DISTRIBUTION OF DISCRETIONARY FINANCIAL AID AND STAFFORD LOANS

Dan Sherman
Jon Cohen

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Introduction

Institutions exercise discretion in the types and amounts of many forms of financial aid that students receive. Although they do not determine whether a student receives some forms of aid such as Pell Grants or ROTC scholarships, they do determine whether students receive institutional aid or Federal campus-based aid (Supplemental Education Opportunity Grant (SEOG), Perkins Loan, and College Work Study (CWS)). In addition, the extent to which an institution uses these sources to meet a student's financial need will affect the student's need for a Stafford Loan.

This report examines how institutions award the various forms of aid over which they have discretion. We also examine the receipt of Stafford Loans because, while students make the decisions about whether to borrow, their decisions depend on the extent to which institutions meet their needs through discretionary aid sources. Although most forms of financial aid are awarded to meet student need, other factors determine whether a student receives one form of aid or another. For example, although two students may have identical levels of need, an institution may prefer to meet the need of the high-ability student with institutional grants and rely on government loans to meet the financial need of the other student.

A multivariate statistical model is used to analyze the receipt of institutional aid, Federal campus-based aid, and Stafford Loans at private and public four-year schools. This model relates the receipt and amount of each form of aid to individual student's level of need and other characteristics such as academic performance, race, dependency status, and gender. The model is used to assess the relationship between the characteristics of aided students, including need, and the probability that they received various forms of aid. The model also examines how the amount of these forms of aid varied with need and other characteristics.

The analysis uses data from the National Postsecondary Student Aid Study (NPSAS) to examine the influence of need and other factors on whether the aid packages of undergraduate students contained various forms of discretionary aid and Stafford Loans along with the amount of such aid that students received.[1] NPSAS is a nationally representative sample of students enrolled in postsecondary education in the fall of 1986 which contains detailed information on the characteristics of students and their financial aid awards. For the analyses presented in this report, only those aided undergraduates who were enrolled at four-year institutions on a full-year, full-time basis are considered. Other aided undergraduates may not have been eligible to receive all forms of aid or may have received smaller amounts of aid than otherwise comparable full-year, full-time students.

This report has three sections. The first section reviews the process by which financial aid is awarded to students. The second section describes the empirical model that was used to examine the distribution of discretionary financial aid and Stafford Loans within students' aid packages. The final section discusses highlights of the empirical analysis; an appendix contains the full output for the models described in the report.

A Model of the Award of Financial Aid

The analytic framework used in this report assumes that even though most financial aid is awarded to meet financial need, other factors affect the amount and types of each form of aid within students' aid packages. These include the availability of each form of aid, restrictions placed on the award of aid, and the preferences of institutions in awarding aid to students with different characteristics.

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[1]Appendix A presents summary information from NPSAS on the receipt of different forms of aid among undergraduate aid recipients at schools of different type and control.

The analysis presented below views the award of financial aid as a multi-step process, beginning with the award of Pell Grants and other forms of aid that students bring with them to campus, such as tuition assistance provided by employers. Institutions do not determine whether a students receive these forms of aid; thus, we refer to these forms of aid as non-discretionary.

If a student has financial need after receiving non-discretionary aid, then an institution may meet remaining student need with funds that are available at the campus-level. These funds include Federal campus-based aid (SEOG, CWS and Perkins Loans), along with institutional aid. An institution may also offer a student aid from their own funds if the student does not qualify for Federal need-based aid.

Finally, students may obtain aid through the Stafford Loan program. Although the funds for Stafford Loans are provided by banks (and guaranteed by the Federal government), the decisions that institutions make with respect to the award of campus-based and institutional aid determine whether students will have unmet financial need that may be met by Stafford Loans.

Although need undoubtedly has a major influence on the total amount of discretionary and Stafford aid that students receive, other factors must be considered to explain the choices of institutions and students that result in the observed distribution of financial aid. The factors that may affect the award of each type of aid in a student's aid packages are discussed below.

The amounts of campus-based and institutional aid that may be awarded are not unlimited and the availability of financial aid funds is one factor that may influence aid awards. Although institutions might prefer to offer students as much grant aid as possible, they may have little SEOG or institutional aid available. In addition, institutions are limited in the maximum amount of Federal aid that they can award. For example, the maximum SEOG award that a student can receive is currently $4,000.

Institutions will also consider the expected effect of the award of different forms of aid on

student enrollment, persistence, and achievement. For example, in making an offer of aid to an applicant who has been accepted at another school, an institution may prefer to award grants which are more attractive to students than are loans which must eventually be paid back. Among students who are already enrolled, an institution may prefer to award students some forms of aid rather than others. For example, if an institution feels that some students would drop out rather than accepting aid packages consisting mostly of loans, these students might be offered grants to the extent possible.

Another important determinant of the forms of aid that students receive is the value that institutions place on maintaining certain student characteristics within their school's student body. For example, an institution may place a high value on attracting and maintaining enrollments of high-ability students and therefore offer grants rather than loans to students with high grade point averages.

The aid packages we observe are the result of interaction among these factors; therefore, students with identical need may receive different packages. These packages will reflect the preferences of institutions in attracting and retaining students with different characteristics, along with the expected effects of different forms of aid on the educational outcomes of different types of students.

Several researchers have presented theoretical and empirical models of the aid award process. Miller (1981) developed a formal model in which institutions were postulated to derive utility from the characteristics of their student body and to allocate available financial aid in order to attract and retain the mix of students that maximized the institution's utility. In applying this theory to Stanford University, Miller found that the institutions placed high value on attracting minority students.

Baum and Schwartz (1988), using High School and Beyond (HS&B) data, found that both

ability and financial need were significant factors in explaining whether a student received discretionary grants, but that ability was irrelevant in the determination of whether a student received nondiscretionary grants such as Pell Grants. With respect to race, Baum and Schwartz found that black students were significantly more likely to receive discretionary grants than were other students.

Manski and Wise (1983), using data from the National Longitudinal Study of the Class of 1972, similarly found that the amount of discretionary grant aid that students received was related to student merit and need. In addition, they found that minority students were also more likely to receive discretionary grants, other things held constant.

The next section presents an empirical model of the award of institutional, campus-based, and Stafford Loan aid that relates the receipt of these forms of aid to student need, the availability of aid, and student characteristics.

Specification of an Empirical Model

This section presents an empirical model of the aid award process which uses Tobit analysis to examine the award of financial aid. Tobit analysis is similar to "standard" regression analysis except that it takes account of the fact that the outcome variable cannot fall above or below a certain limit.[2] In the case of financial aid, students cannot receive an aid award below zero or, in the case of some forms of aid, above some maximum. The Tobit model predicts the probability that a student's financial aid package included a given form of aid and also the expected amount of that aid. The predicted probability that an aided student received a form of

[2]A regression model that ignores that fact that a dependent variable such as the amount of aid awarded cannot fall above or below a limiting value will produce biased estimates of the effects of the explanatory variables (Greene, 1990).

aid can also be interpreted as the fraction of aided students with a particular set of characteristics who received that form of aid. Similarly, the expected amount of aid can be interpreted as the average amount of aid that recipients of that form of aid with those characteristics received.

The use of a multivariate model permits assessment of the independent contribution of different personal characteristics in determining the forms and amounts of aid students received. For example, we can compare the difference in the predicted amount of institutional aid a student with $5,000 in need and a 2.0 GPA received compared to a student with the same amount of need but with a 4.0 GPA.

Five forms of aid are considered in this analysis: Perkins Loans, SEOGs, College Work Study, institutional aid, and Stafford Loans. We have limited our multivariate analyses to aided full-time, full-year undergraduates in public and private four-year institutions and have estimated models for each form of aid considered. Estimates are presented separately for private and public institutions.

The dependent variables in the Tobit models are the amount of each form of aid that the student received within his or her aid package. If the student received no aid of the form considered, the variable takes a value of zero. The Tobit models relate the amount of aid an individual received to the following explanatory variables[3]:

- a measure of student financial need;
- race (white versus non-white);
- gender;
- cumulative grade point average;
- whether a student is dependent on his or her parents for financial support; and

[3]A more detailed description of these variables and their construction from the NPSAS data set is presented in Appendix B.

- a measure of the availability of a given form of aid per eligible student within the institution. (These measures are available only for Federal campus-based aid.)

NPSAS data included two measures of overall student need, defined as the difference between the cost of attending a given institution and what a student and his or her family are expected to contribute to this cost. For approximately 70 percent of the students included in the analysis, a measure of need was computed using the Expected Family Contribution that was reported by institutions on financial aid records. For those students whose records did not contain this information, NPSAS also included information that permitted computation of the Expected Family Contribution based on information on its component factors such as income and family size. We have incorporated both measures into our analysis. Data on GPAs came from students' reports and not institutions' records.

It is important to note that the amount of need that students have depends on the stage of the aid award process that is considered. In calculating the appropriate measure of student need for the allocation of Federal campus-based aid and institutional aid, we have reduced each student's overall need by the amount of Pell grant, employer assistance, and other forms of aid that students bring to campus. In examining the award of Stafford Loans, financial need is further adjusted to reflect the award of any Federal campus-based and institutional aid.

The remainder of the report describes the results of the Tobit analyses, the full output of which is presented in Appendix C. Given the somewhat complex structure of the Tobit model, it is not possible to directly interpret individual coefficients.[4] To facilitate interpretation of our results, we have included tables and figures that show how the probability of receiving a form of aid within an aid package and the expected amount of aid received vary with student characteristics.

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[4]Maddala (1983) provides details on the precise interpretation of Tobit coefficients.

Institutional Aid

Our results indicate that at both public and private institutions, aided students are more likely to receive institutional aid as their financial need increases. This suggests that schools use their own funds to provide aid to students beyond what is available from other sources such as the Federal government. In allocating institutional aid, schools also appear to take a student's GPA into account; for a given level of need, those students with higher GPAs are more likely to receive larger amounts of institutional aid.[5]

Table 1 presents the predicted probability that aided students with certain characteristics received institutional aid within their aid packages, along with the expected amount of aid that they received. These probabilities and expected aid amounts assume that students are at the mean on all characteristics considered in the model except the one given in the row of the table. The entries in the tables show how the predicted probability of aid and the expected amount of aid received differ among otherwise comparable students as need and other characteristics change.

The strong effect of need on institutional aid awards at private institutions is apparent from the table. An aided student at a private school with no need at this stage of the award process had a 60 percent chance of receiving institutional financial aid in his or her package. In comparison, an otherwise comparable student with $10,000 of need had an 81 percent chance of

[5]Although the theoretical model identifies the availability of aid as a factor that affects its distribution, it is not possible to identify a single measure of the amount of institutional aid that a school could award. The availability of this aid is generated both from an institution's endowment (and the earnings that accrue to this endowment) and from sources of current revenue such as tuition.

TABLE 1

Predicted Probability of Receiving Institutional Aid and Expected Aid Amounts Among Aided Students at Four-year Institutions

Characteristics	Private		Public	
	Probability of receiving aid	Expected amount of aid, given award	Probability of receiving aid	Expected amount of aid, given award
Financial Need				
$0	58%	$2,705	21%	$1,576
1,000	60	2,791	22	1,594
2,000	63	2,879	23	1,613
5,000	72	3,166	25	1,672
10,000	81	3,718	30	1,778
Gender	ns	ns	ns	ns
Male				
Female				
Race/Ethnicity	ns	ns	ns	ns
White				
Non-white				
Dependency Status			ns	ns
Dependent	71	3,174		
Independent	57	2,655		
Grade Point Average				
Missing	73	3,286	24	1,646
1.0	46	2,336	10	1,323
2.0	58	2,691	16	1,472
3.0	69	3,117	24	1,649
4.0	79	3,623	34	1,860

Note: ns = not statistically significant at the .001 level (two-tailed test)

Source: NPSAS In-School Sample, 1986-87

receiving such aid. At the same time, there was almost a $1,000 difference in the amount of institutional aid received by these two otherwise comparable students.[6]

The relationship between student GPA and institutional aid at private institutions is even more striking. An aided student with an average level of need and a 1.0 GPA had only a 46 percent chance of receiving institutional financial aid, while a student who had a 4.0 GPA and was average in all other respects had a 79 percent probability of receiving institutional aid. Again, these differences were also associated with a difference in the size of an award. The difference in the expected award of institutional aid (given an award of such aid) between two "average" students who were otherwise identical except that one student had a 1.0 GPA while the second had a 4.0 GPA is $1,300. Race or gender differences were not significantly associated with the award of institutional aid.

Table 1 indicates that similar relationships among student characteristics and the award of institutional aid existed at public schools. Again, the probability of receipt and expected amount of institutional aid increased with need and GPA but was not significantly associated with race or gender.

Figure 1 illustrates how the predicted probability of an aided student receiving institutional aid at a four-year private school varies with need and GPA. The individual curves show how the probability of receiving institutional aid within an aid package varied with need for students with a given GPA, holding all other variables at their mean value for aid recipients at private schools. The gaps between the curves represent the difference associated with GPA in the probability that students with a given level of need received institutional aid. Figure 1 also presents the

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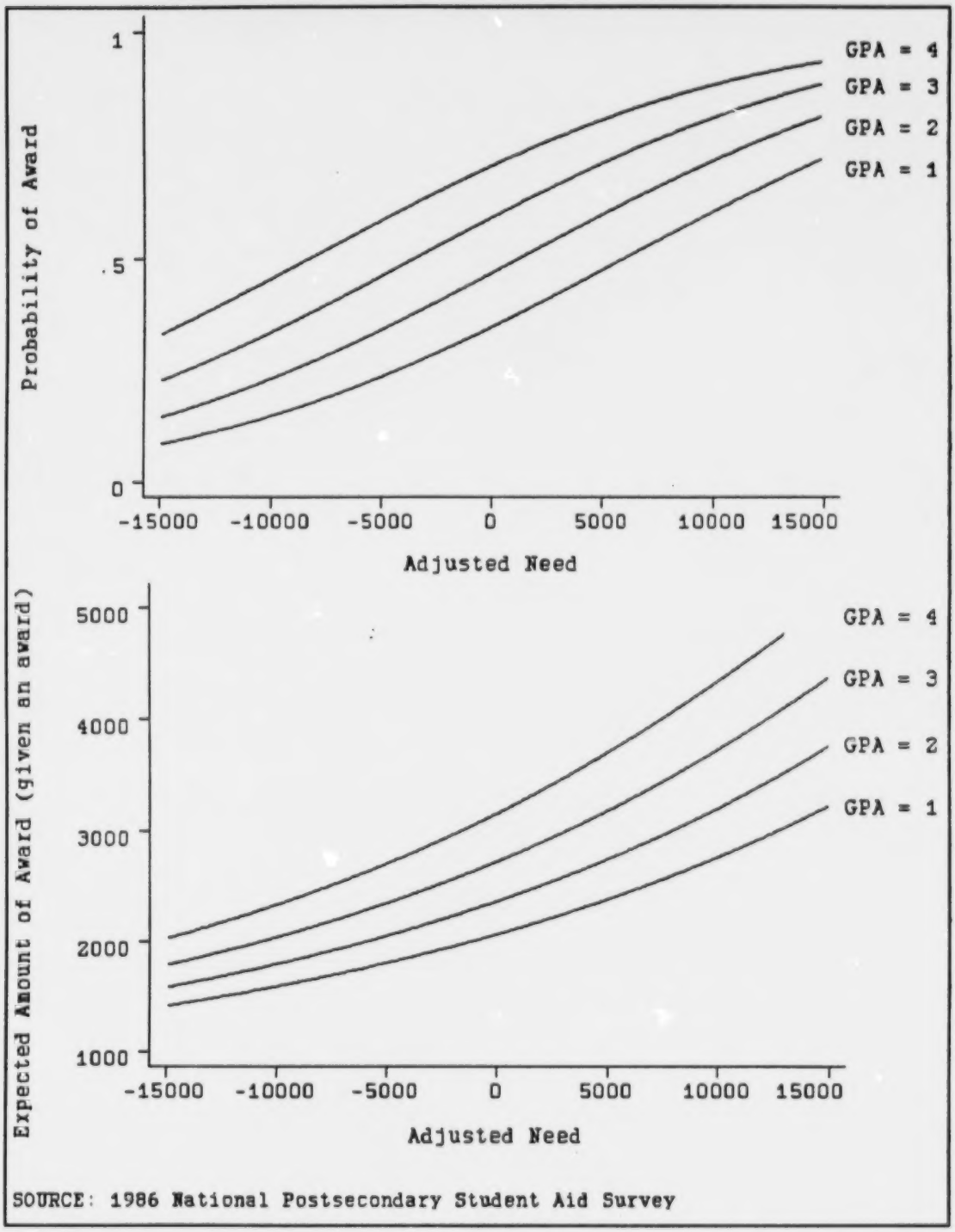
[6]In assessing the "statistical significance" of an estimated coefficient, we have used a relatively conservative standard of significance at the .001 level to reflect the complex sampling design of the NPSAS sample. Although our Tobit estimates incorporate weighting information on individual observations, we have not developed an estimator that would account for the sampling framework by which NPSAS data were obtained.

Figure 1: Predicted Probability of Award of Institutional Aid and Predicted Amount of Institutional Aid Awarded at Four-year Private Institutions



SOURCE: 1986 National Postsecondary Student Aid Survey

relationship between need and the expected amount of institutional aid, given the receipt of such aid, at private schools. The need range was expanded to include the cases of aided students with negative need, though it should be noted that relatively few aid recipients actually had negative need.

Figure 2 presents information on the award of institutional aid at public schools. The figures are similar to those presented for private institutions in that the probability of receiving institutional aid and the expected amounts of aid received increased with financial need and GPA. In contrast to private schools, however, the curves within this figure are lower with respect to the vertical axis, reflecting the finding that students at public institutions were less likely to receive institutional aid and to receive smaller amounts of such aid than are comparable students at private institutions.

Federal Campus-based Aid

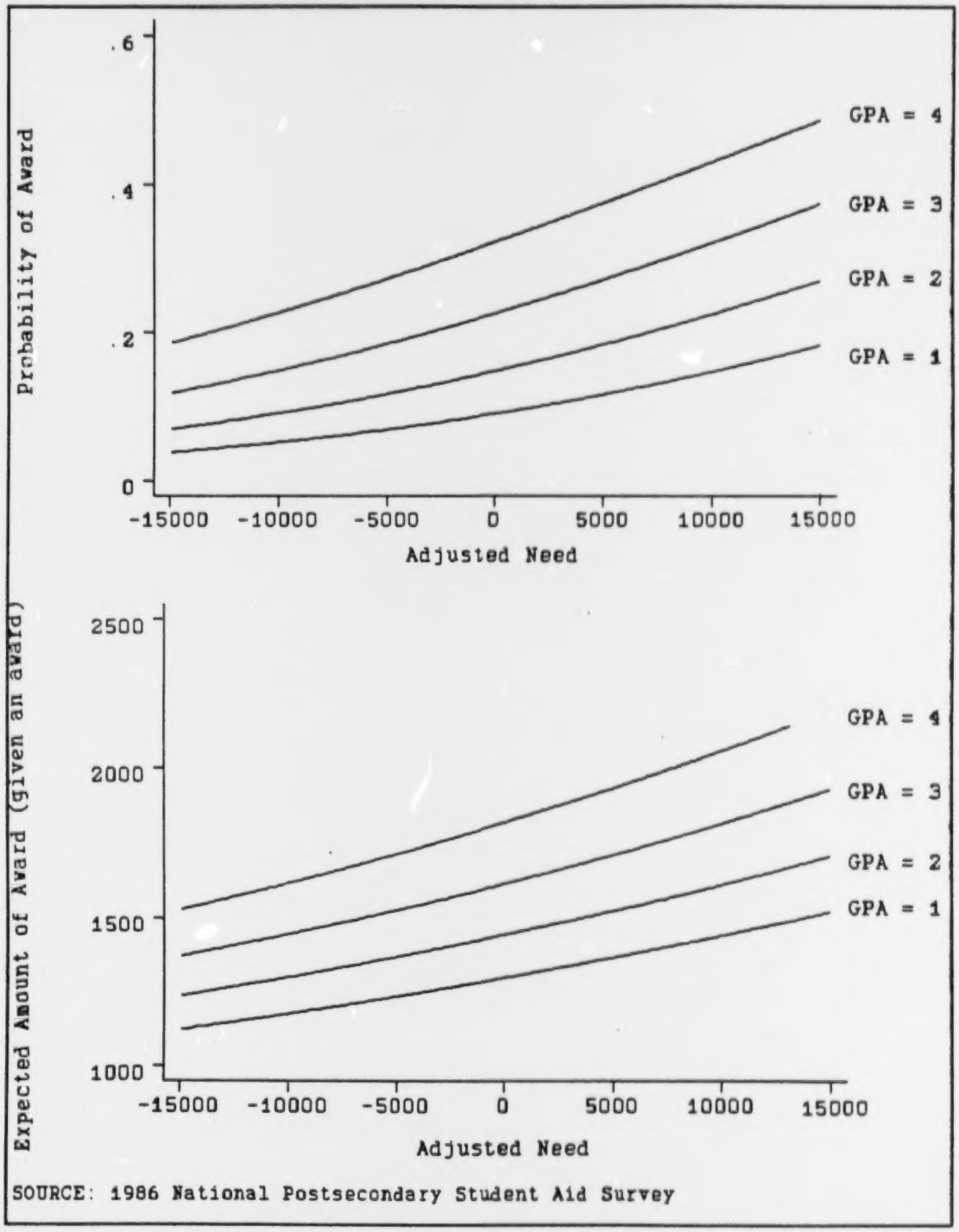
The Federal campus-based aid program provides funds to schools for distribution to needy students. There are three separate campus-based programs: Supplemental Education Opportunity Grants, Perkins Loans, and College Work Study.

Our results indicate that the award of campus-based financial aid was similar to that of institutional aid, in that students with higher levels of need were more likely to receive all forms of Federal campus-based aid. Unlike institutional aid, however, students with higher GPAs did not appear to be more likely to receive these forms of aid. Rather, depending on the type of aid considered, higher GPA students sometimes were less likely to have aid packages that contained these forms of aid. Whereas race did not seem to affect the award of institutional aid, minority students appeared to be somewhat more likely to receive these forms of aid. These results are discussed in more detail below.

Supplemental Education Opportunity Grants (SEOG)

Table 2 presents predictions of the probability that aided students with various characteristics received SEOG aid along with the predicted average amount of SEOG aid they received.

Figure 2: Predicted Probability of Award of Institutional Aid and Predicted Amount of Institutional Aid Awarded at Four-year Public Institutions



SOURCE: 1986 National Postsecondary Student Aid Survey

TABLE 2

Predicted Probability of Receiving SEOGs and Expected Amounts Among Aided Students at Four-year Institutions

Characteristics	Private		Public	
	Probability of receiving aid	Expected amount of aid, given award	Probability of receiving aid	Expected amount of aid, given award
Financial Need				
$0	10%	$637	11%	$525
1,000	12	659	12	542
2,000	14	683	14	561
5,000	21	763	21	623
10,000	37	931	37	751
Gender	ns	ns	ns	ns
Male				
Female				
Race/Ethnicity				
White	18	730	12	540
Non-white	24	792	20	614
Dependency Status	ns	ns	ns	ns
Dependent				
Independent				
Grade Point Average			ns	ns
Missing	18	733		
1.0	32	877		
2.0	24	798		
3.0	18	729		
4.0	13	670		
SEOG Available Per Eligible Student				
$100	17	723	13	543
200	19	738	18	593

Note: ns = not statistically significant at the .001 level (two-tailed test)

Source: NPSAS In-School Sample, 1986-87

The table shows that at both private and public institutions, the probability of an aided student receiving an SEOG and the expected amount of such aid increased with student need. At public schools, GPA did not affect the award of SEOG, though at private schools, aided students with higher GPAs were less likely to receive SEOG funds. These results are somewhat surprising, in that one would expect that schools would award SEOG to higher GPAs just as they awarded institutional aid.

One factor that did affect the award of SEOG funds was minority status. White students who received financial aid were less likely to receive SEOG funds than were minority students. This suggests an important difference between the use of institutional aid and SEOG aid. Schools appear to have used both types of aid to meet financial need, but institutional aid was focused towards more academically able students (regardless of race), while SEOG aid was more likely to be given to minority students or students with lower GPAs.

The analyses indicate that increased availability of SEOG aid on-campus increased the likelihood students would receive such aid, along with the amounts of SEOG aid received. At public schools, an increase of $200 of SEOG money per eligible student was associated with about a 5 percentage point increased chance of a student at that school receiving an SEOG. At private institutions, the increase was about 2 percentage points.

Perkins Loans

Our analysis of Perkins Loans, which is summarized in Table 3, shows that aided students with higher levels of need were more likely to receive Perkins Loans (and larger amounts of such aid) at both private and public institutions. Aided students at private schools were less likely to receive Perkins Loans as their GPAs increased while in public institutions there was no significant relationship between the award of Perkins Loans and GPA. In this respect, at public institutions

TABLE 3

Predicted Probability of Receiving Perkins Loans and Expected Aid Amounts Among Aided Students at Four-year Institutions

Characteristics	Private		Public	
	Probability of receiving aid	Expected amount of aid, given award	Probability of receiving aid	Expected amount of aid, given award
Financial Need				
$0	14%	$727	17%	$828
1,000	17	756	19	858
2,000	20	787	22	890
5,000	30	893	31	998
10,000	49	1,118	49	1,225
Gender	ns	ns	ns	ns
Male				
Female				
Race/Ethnicity	ns	ns	ns	ns
White				
Non-white				
Dependency Status	ns	ns	ns	ns
Dependent				
Independent				
Grade Point Average			ns	ns
Missing	26	855		
1.0	40	1,012		
2.0	33	927		
3.0	25	851		
4.0	19	784		
Perkins Loan Available Per Student			ns	ns
$100	27	855		
$200	26	840		

Note: ns = not statistically significant at the .001 level (two-tailed test)

Source: NPSAS In-School Sample, 1986-87

Perkins Loans were similar to SEOG awards. Neither gender nor race affected the award of Perkins Loans at either private or public schools. Although there was a statistically significant effect of increasing the availability of Perkins Loan funds at private schools, this effect was quite small; at public schools, the effect was insignificant.

College Work Study (CWS)

The analyses of CWS awards, summarized in Table 4, indicate that need was an important determinant of whether or not students received CWS awards within their aid packages. Student grades, however, were not associated with the award of CWS aid at either type of school. Minorities were more likely to receive CWS awards than other aided students at public but not at private schools. The availability of such CWS money at the campus level was positively associated with the likelihood that an aided student received CWS at both types of institutions. However, this relationship was quite small at private schools.

Stafford Loans

Table 5 presents summary results for the analysis of the award of Stafford Loans. At both public and private schools, aided students with higher levels of need were more likely to receive Stafford Loans.[7] Lower-GPA students were more likely to have aid packages that contained Stafford Loans than otherwise comparable aid recipients. At private schools, an average aided student with a GPA of 1.0 had an 85 percent chance of receiving a Stafford Loan, while a student with a 4.0 GPA had only a 64 percent chance of receiving such a loan. This pattern is also seen at public schools where an aided student with a 1.0 GPA had a 66 percent chance of receiving a Stafford Loan. An otherwise comparable aid recipient with a 4.0 GPA had only a 53 percent chance of receiving a Stafford Loan in his or her package.

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[7]As noted above, the need measure used in the analysis of Stafford Loans adjusts overall need for the award of non-discretionary aid, institutional aid, and Federal campus-based aid.

TABLE 4

Predicted Probability of Receiving College Work Study and Expected Aid Amounts Among Aided Students at Four-year Institutions

Characteristics	Private		Public	
	Probability of receiving aid	Expected amount of aid, given award	Probability of receiving aid	Expected amount of aid, given award
Financial Need				
$0	22%	$794	5%	$453
1,000	25	822	6	475
2,000	28	851	8	499
5,000	37	949	17	585
10,000	54	1,148	41	787
Gender	ns	ns	ns	ns
Male				
Female				
Race/Ethnicity	ns	ns		
White			6	476
Non-white			14	557
Dependency Status	ns	ns	ns	ns
Dependent				
Independent				
Grade Point Average	ns	ns	ns	ns
Missing				
1.0				
2.0				
3.0				
4.0				
College Work Study Available Per Student				
$100	33	911	5	456
200	34	918	8	493

Note: ns = not statistically significant at the .001 level (two-tailed test)

Source: NPSAS In-School Sample, 1986-87

TABLE 5

Predicted Probability of Receiving Stafford Loans and Expected Aid Amounts Among Aided Students at Four-year Institutions

Characteristics	Private		Public	
	Probability of receiving aid	Expected amount of aid, given award	Probability of receiving aid	Expected amount of aid, given award
Financial Need				
$0	72%	1,398	57%	$1,190
1,000	75	1,479	62	1,309
2,000	78	1,558	67	1,427
5,000	85	1,777	80	1,753
10,000	93	2,068	93	2,148
Gender	ns	ns	ns	ns
Male				
Female				
Race/Ethnicity				
White	75	1,465	62	1,305
Non-white	69	1,316	49	1,005
Dependency Status	ns	ns	ns	ns
Dependent				
Independent				
Grade Point Average				
Missing	73	1,411	60	1,255
1.0	85	1,774	66	1,393
2.0	79	1,598	62	1,297
3.0	72	1,406	58	1,200
4.0	64	1,204	53	1,103

Note: ns = not statistically significant at the .001 level (two-tailed test)

Source: NPSAS In-School Sample, 1986-87

Figure 3 plots the predicted probability of receiving a Stafford Loan at a four-year private school for aided students at various need and GPA levels at private institutions. Figure 3 also presents information on the expected amount of Stafford Loan expected to be awarded at these schools. Comparison of Figure 3 and Figure 1 clearly illustrates the different relationships between the award of Stafford Loans and institutional aid. The two figures are virtually identical, except that the order of the lines representing different GPAs are reversed. This shows that for a given level of need, an aided student with a higher GPA was more likely to receive institutional aid but less likely to receive a Stafford Loan than was one with a lower GPA. Figure 4 demonstrates a similar relationship between need and GPA and the award of Stafford Loans among aided students at public institutions.

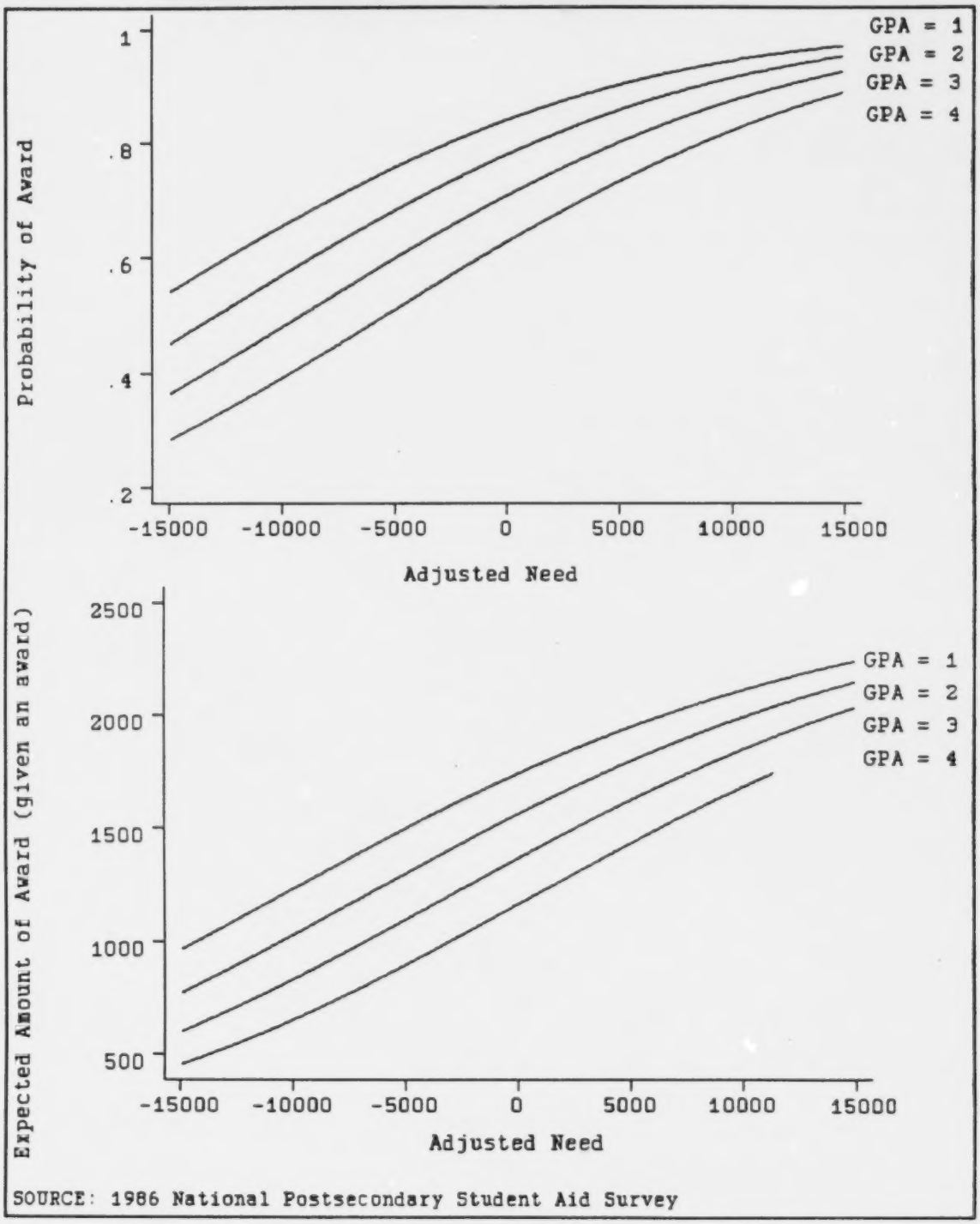
Although there were no differences in the award of Stafford Loans by individuals' gender, the analyses indicate that white students were more likely to receive aid packages that contained Stafford Loans than were non-white students at both public and private schools.

Conclusions

We have examined the distribution of institutional, campus-based, and Stafford Loan financial aid. Students' financial need was found to be an important determinant of whether aided students received each form of aid considered in their aid packages. Federal legislation requires that Stafford Loans and Federal campus-based aid be awarded on the basis of need. As expected given this requirement, students with greater financial need were more likely to have received these forms of aid in their aid packages and receive larger amounts of such aid. Although institutions are not constrained to award their own funds on the basis of financial need, the results indicate that need was also an important factor in the distribution of institutional aid.

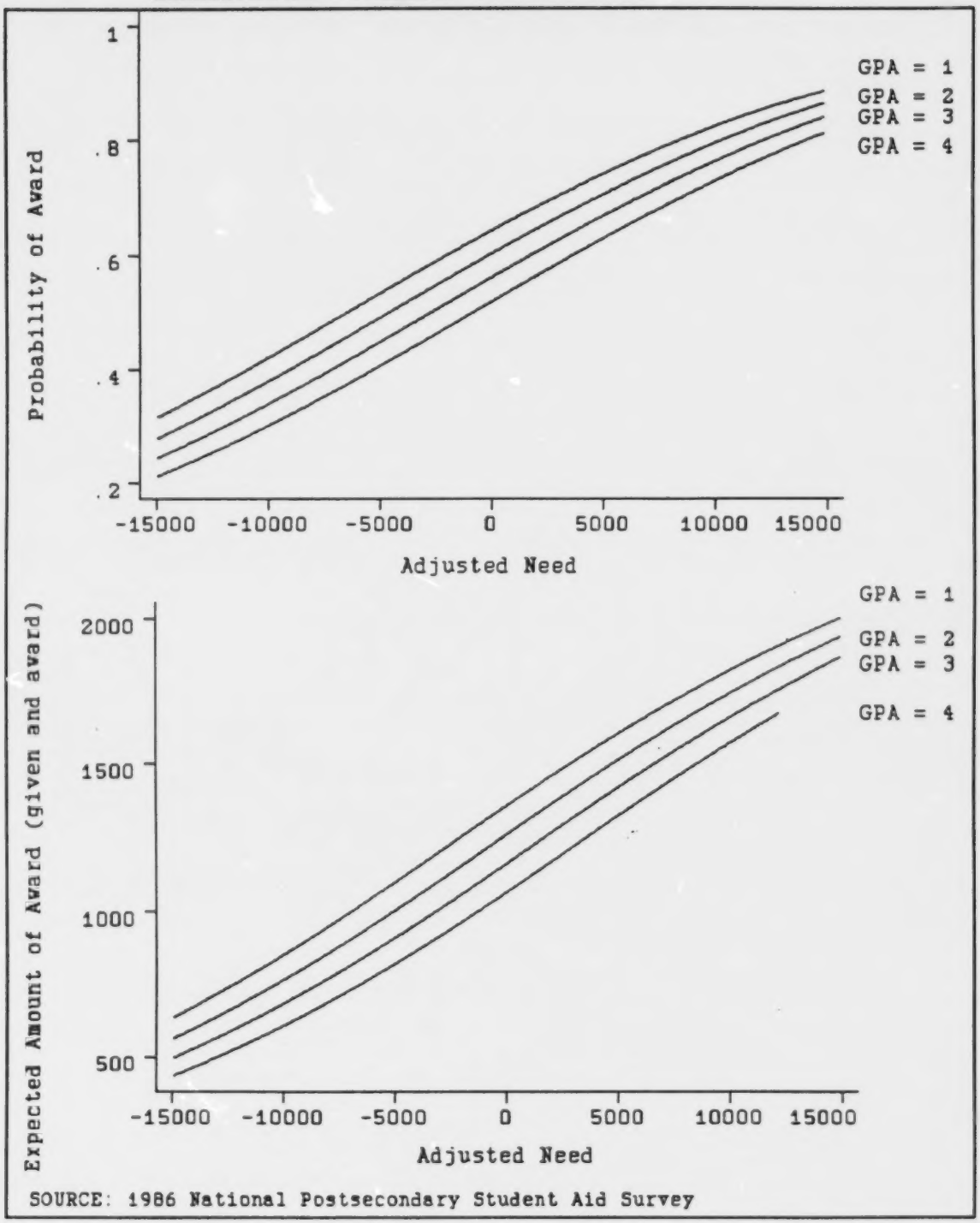
The results from our model indicate that characteristics of students other than need also influenced the award of the five types of financial aid considered. One characteristic of students

Figure 3: Predicted Probability of Award of Stafford Loans and Predicted Amount of Stafford Loan Aid Received at Four-Year Private Institutions



SOURCE: 1986 National Postsecondary Student Aid Survey

Figure 4: Predicted Probability of Award of Stafford Loans and Predicted Amount of Stafford Loan Aid Received at Four-year Public Institutions



SOURCE: 1986 National Postsecondary Student Aid Survey

that determined whether they received institutional aid or a Stafford Loan was their grade point average. Among aid recipients with a given level of need, those students with higher GPAs were much more likely to have received institutional aid than those with lower GPAs. The relationship was reversed for Stafford Loans. Students with lower GPAs were more likely to receive these loans than similar students with higher GPAs. In addition, evidence is presented that minority students were more likely to be awarded SEOGs and less likely to be awarded Stafford Loans than were white students. Gender appears to have had little effect on the award of the forms of aid considered in this report.

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APPENDIX A

Individual Components of Financial Aid

Individual Components of Financial Aid

The NPSAS data set contains information on approximately 65 different forms of aid that postsecondary students received in the fall of 1986. Tables A-I and A-II present information on the forms of aid considered in this report: Federal campus-based aid, institutional aid, and Stafford Loans. Table A-I gives the percent of aided undergraduate students whose aid packages contained each form of aid. Table A-II reports the average amount of aid received by recipients of each form of aid. The tables present information on both the total Federal campus-based aid that students received and on each component of this aid.

Table A-I: Percent of Aid Recipients Receiving Different Forms of Discretionary Financial Aid, by Type and Control of School

PERCENT AID RECIPIENTS	PUBLIC, <4 YR	PUBLIC, 4 YR	PRIVATE, 4 YR	PROPRIETARY
FEDERAL AID: ALL CAMPUS-BASED	17.27	26.10	33.27	18.05
FEDERAL AID: SEOG	11.20	11.52	15.08	11.74
FEDERAL AID: PERKINS LOAN	2.26	16.42	20.33	10.80
FEDERAL AID: WORK-STUDY	9.06	10.93	17.23	0.79
FEDERAL AID: STAFFORD LOAN	25.27	44.50	55.47	79.26
INSTITUTIONAL AID	27.70	31.59	68.93	6.87

Source: 1986 National Postsecondary Student Aid Study

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Table A-II: Average Amount of Different Forms of Discretionary Financial Aid Received by Aided Students, by Type and Control of School

MEAN AID AMOUNT RECEIVED	PUBLIC, <4 YR	PUBLIC, 4 YR	PRIVATE, 4 YR	PROPRIETARY
FEDERAL AID: ALL CAMPUS-BASED	1016	1341	1565	1205
FEDERAL AID: SEOG	541	669	918	552
FEDERAL AID: PERKINS LOAN	1007	979	1099	1291
FEDERAL AID: WORK-STUDY	1016	1025	922	1661
FEDERAL AID: STAFFORD LOAN	2059	2100	2317	2459
INSTITUTIONAL AID	685	1563	2826	2232

Source: 1986 National Postsecondary Student Aid Study

APPENDIX B

Construction of Variables and Model Specification

Construction of Variables and Model Specification

This appendix discusses construction of variables from the NPSAS database and the specification of the Tobit model used in this report. One variable used in these analyses was student need. For approximately seventy percent of students in the analysis, a measure of expected family contribution (EFC) was reported from financial aid records and could be combined with cost information to create a measure of need. For other students, however, need was computed using survey information on total costs of attendance along with a measure of expected family contribution (EFC) computed within the NPSAS data base using data on factors such as family income and family size.

In developing our Tobit analysis, we have used a specification that incorporates both measures of need. The variable in the model denoted "Record Need" takes the value of need from financial aid records and is otherwise set equal to zero. Similarly the variable in the model denoted "Computed Need" takes the value of need derived using survey data on student characteristics and otherwise is set equal to zero. An indicator variable "No Record Need" takes the value of one if the need measure derived from financial aid records is not available, and zero otherwise.

The inclusion of the two need measures permits aid recipients to be included in the model even if their need could not be obtained from financial aid records. The alternative of using only observations for whom need could be measured from financial aid records would eliminate approximately 30 percent of sample observations. The coefficients on the two variables estimate the relation between the receipt of aid and the measure of need that is available for students. In assessing the effect of changes in need on the receipt of aid in the tables and figures provided in the test, we have used the coefficient of the "Reported Need" variable.

In including a measure of grade point average in the model, it is necessary to account for

individuals for whom GPA was not available. For these students, the GPA variable was set equal to zero and the indicator variable "GPA MISSING" was set equal to one. The coefficient of the "GPA MISSING" variable adjusts the intercept for individuals whose GPA was not reported while permitting data on these individuals to be used in calculating the other coefficients in the model.

In order to calculate measures of the availability of Federal campus-based aid at the campus level, we merged data collected from schools on the Fiscal Operations and Report and Application to Participate (FISAP) form. FISAP data include information on the total amount of funds available under each program by school and the number of financial aid applicants judged to have need. By dividing the amount of aid available by the number of students eligible to receive this aid, we have computed a measure of aid availability. This measure gives the amount of aid each student would receive if all eligible students received the same amount of aid.

APPENDIX C

TOBIT Estimates

TABLE C-1

Tobit Estimates

Institutional Aid
Private Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-2080	259.9	-8.00
Independent	-1155	120.9	-9.55
GPA	950.9	83.08	11.45
GPA Missing	3187	254.5	12.52
Record Need	0.2026	0.0098	20.67
No Record Need	308.4	102	3.02
Computed Need	0.0181	0.0052	3.48
White	-1.197	111.5	-0.01
Male	239.3	84.31	2.84
Sigma	3075	35.06	87.71

Sample Size: 5,993

Institutional Aid
Public Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-4303	282.7	-15.22
Independent	-170.3	121.6	-1.40
GPA	810.3	87.37	9.27
GPA Missing	2416	272.9	8.85
Record Need	0.0835	0.0199	4.20
No Record Need	1231	116.1	10.60
Computed Need	-0.0201	0.0066	-3.05
White	-286.5	123.2	-2.33
Male	80.02	104.5	0.77
Sigma	2793	60.34	46.29

Sample Size: 4,614

TABLE C-2

Tobit Estimates

SEOG Aid
Private Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-760.4	174.6	-4.36
Independent	43	81.62	0.53
GPA	-307.4	58.3	-5.27
GPA Missing	-902.4	172.4	-5.23
Record Need	0.1274	0.0081	15.73
No Record Need	-619.9	110.6	-5.60
Computed Need	0.0941	0.0151	6.23
White	-274.9	70.6	-3.89
Male	-113.7	58.63	-1.94
Availability	0.7496	0.0886	8.46
Sigma	1348	38.49	35.02

Sample Size: 5,289

SEOG Aid
Public Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-1432	165.7	-8.64
Independent	-94.4	69.38	-1.36
GPA	14.81	52.13	0.28
GPA Missing	129	155.5	0.83
Record Need	0.0991	0.0134	7.40
No Record Need	-550.5	90.41	-6.09
Computed Need	0.0967	0.0198	4.88
White	-369.1	66.49	-5.55
Male	-26.24	60.72	-0.43
Availability	2.565	0.2168	11.83
Sigma	1094	43.74	25.01

Sample Size: 3,789

TABLE C-3

Tobit Estimates

Perkins Loan
Private Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-703.8	171.9	-4.09
Independent	155	79.44	1.95
GPA	-291.6	56.1	-5.20
GPA Missing	-859.9	166.9	-5.15
White	167.4	73.17	2.29
Male	-103.5	56.43	-1.83
Record Need	0.147	0.0079	18.61
No Record Need	-697.1	101.4	-6.87
Computed Need	0.0991	0.1397	0.71
Availability	-0.6274	0.1448	-4.33
Sigma	1418	34.21	41.45

Sample Size: 5,289

Perkins Loans
Public Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-1709	199	-8.59
Independent	241.5	83.75	2.88
GPA	122.3	62.26	1.96
GPA Missing	110.2	191.7	0.57
White	-75.1	86.18	-0.87
Male	-55.44	75.49	-0.73
Record Need	0.1447	0.0161	8.99
No Record Need	-668.2	102.3	-6.53
Computed Need	0.1343	0.02	6.72
Availability	-0.3342	0.2769	-1.21
Sigma	1550	51.97	29.82

Sample Size: 3,789

TABLE C-4

Tobit Estimates

College Work Study
Private Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-746.2	158.7	-4.70
Independent	-160.3	74.8	-2.14
GPA	-24.61	51.64	-0.48
GPA Missing	-171.2	155.4	-1.10
Record Need	0.1179	0.0068	17.34
No Record Need	-1067	99.15	-10.76
Computed Need	0.1206	0.0141	8.55
White	-204.2	65.09	-3.14
Male	-167.6	51.95	-3.23
Availability	0.2291	0.0487	4.70
Sigma	1380	30.21	45.68

Sample Size: 5,289

College Work Study
Public Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	-1498	245.7	-6.10
Independent	73.69	108.3	0.68
GPA	-115.2	78.43	-1.47
GPA Missing	-618.6	239.2	-2.59
Record Need	0.1579	0.0204	7.74
No Record Need	-1350	149.6	-9.02
Computed Need	0.1781	0.0338	5.27
White	-482.8	106.4	-4.54
Male	-235.5	97.14	-2.42
Availability	2.541	0.2978	8.53
Sigma	1904	64.86	29.36

Sample Size: 3,789

TABLE C-5

Tobit Estimates

Stafford Loans
Private Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	1927	150.4	12.81
Independent	192.1	69.63	2.76
GPA	-394.5	49.67	-7.94
GPA Missing	-1173	150	-7.82
White	295.4	65.32	4.52
Male	6.034	50.23	0.12
Record Need	0.1053	0.007	15.04
No Record Need	-1298	60.68	-21.39
Computed Need	0.0576	0.005	11.52
Sigma	1761	24.23	72.68

Sample Size: 5,977

Stafford Loans
Public Four-Year Institutions

Variable	Coefficient	Std Error	T-Ratio
Intercept	235.3	162.8	1.45
Independent	386	77.17	5.00
GPA	-213.1	53.97	-3.95
GPA Missing	-517.3	164.4	-3.15
White	665.3	81.96	8.12
Male	190.6	68.29	2.79
Record Need	0.1126	0.0126	8.94
No Record Need	-914.7	76.94	-11.89
Computed Need	0.1489	0.0121	12.31
Sigma	2011	36.17	55.60

Sample Size: 4,601

DESCRIPTIVE TABLES OF THE CHARACTERISTICS OF UNDERGRADUATE STUDENTS BY RACE AND ETHNICITY

I. Introduction

This report provides summary tabulations on undergraduate students on the basis of their race and ethnicity. The tabulations are derived from the in-school component of the National Postsecondary Student Aid Study (NPSAS), a nationally representative sample of students enrolled in postsecondary education in the fall of 1986. The tables in the report describe students in terms of their personal and schooling characteristics, including the receipt of financial aid. In computing statistics from NPSAS data, weighting information was used to create statistics representative of the population of undergraduate students enrolled in the fall of 1986. Highlights from the tabular analyses are presented below.

II. Personal Characteristics

Table 1 presents information about the personal characteristics of undergraduate students by racial and ethnic group.

- White students had higher family incomes than did other students. Among students who were dependent upon their parents for financial support, white students had incomes that were nearly twice those of students from black families. This same pattern existed among students who were independent of their parents for financial support. However, the differences between the average family income of independent white and minority students were smaller in percentage terms than those among dependent students.

- A measure of economic well-being that combines information on family size and family income is the poverty line for a family of a specified size. White students were much more likely to be above the poverty line than were students from other racial and ethnic groups; this relation existed whether students were or were not dependent on their families for financial support.

- Black students were more likely to be female and to have dependent children than were white students. Asian students were more likely to be male and less likely to have dependent children than were other students.

III. Enrollment Characteristics

Tables 2 through 8 present information on student enrollment characteristics--school type and control, region, fulltime attendance, and major course of study--by race and ethnicity:

- Black and Hispanic students were less likely to attend four-year schools than were Asian or white students (Table 2). Forty-eight percent of black students attended four-year schools as did 39 percent of Hispanic students. In comparison, 57 percent of white students and 53 percent of Asian students attended four-year schools. Black and Hispanic students were about three times more likely to have attended proprietary schools than were white or Asian students.

- Differences in the rate at which students within each racial and ethnic group attended four-year schools existed by region of the country (Table 3). For each

group, students in the Northeast were most likely to have attended four-year schools and those in the West the least likely to have attended these schools. In all regions except the South, black students were less likely than other students to have attended four-year schools; in the South, black and white students were as likely to have attended these schools.

- Among dependent students, the propensity to attend four-year institutions increased with income for all students except Asians (Table 4). Within the income groups considered, black and white students attended four-year schools at approximately the same rate. Hispanic students from all income groups were less likely to attend four-year schools. Among independent students, white students were the most likely to attend four-year schools across all income groups. There was, however, no clear pattern by which the propensity to attend a four-year institution varied with the income of independent students.

- In the aggregate, Asian and black students were as likely as whites to attend school on a fulltime basis. Hispanics were less likely than other students to have attended school fulltime (Table 5). Among blacks, those in the South were the most likely to have attended school fulltime; within this region, blacks were more likely to have attended school fulltime than were whites.

- There was no consistent pattern across students of different race and ethnic groups within a given income category to attend school on a fulltime basis. Among dependent students, there was no clear pattern with respect to income in the rate at which students of a given race and ethnicity attended school fulltime. Among independent students, propensity to attend school fulltime decreased with family income (Table 6).

- Among students at four-year institutions, courses of study were generally similar across racial and ethnic groups (Table 7). Asian students were more likely than other students, however, to major in the fields of computer and information sciences, engineering, and math and science and less likely to major in education.

- Among students at two-year institutions, black and Hispanic students were more likely to have majored in administrative support programs than were white students (Table 8).

IV. Financial Aid

Tables 9 through 17 examine the financial aid that fulltime, full-year undergraduates received. The analysis is restricted to these students because part-time students may not be eligible to receive all forms of aid, and less-than-full-year students would not have comparable need for financial aid.

Tables 12 through 16 present the average "net price" that students from different racial and ethic groups paid to attend school. This net price is calculated by subtracting the total amount of aid that students received, if any, from the overall costs (tuition, room and board,

books and supplies, and other expenses) of attending school. Not all students receive aid, however, and the net prices given average the net price paid by both aided and unaided students. Some of the cells within these tables would include averages based on a relatively small number of observations. Cells that include fewer than 20 sample observations have been labelled "low-N" to indicate that the NPSAS dataset included fewer than 20 observations for these cells.

- Overall, black and Hispanic students were more likely and Asian students somewhat less likely to receive financial aid than were white students (Table 9). Within a given family income, blacks were the group most likely to receive financial aid and Asian students the least likely to receive aid.

- Among aided dependent undergraduates with family incomes of greater than $50,000, blacks and Hispanics were more likely to receive grants than whites or Asians (Table 10). The receipt of aid did not vary much by race within income category for independent students.

- Fewer low-income Asians and Hispanics received loans than did whites among both independent and dependent aided undergraduates (Table 11).

- The net price paid to attend school increased with income for students from all racial and ethnic groups as higher income students were less likely to have received financial aid that would reduce net price (Tables 12-16).

- Among dependent students at public, two-year schools, average net price was similar within income groups across racial and ethnic groups (Tables 12). In contrast, dependent black students at four-year institutions from all income groups paid less than dependent white students (Tables 14 and 15). Among dependent students at proprietary schools, black students paid less than white students (Table 16).

- Among independent students, no clear pattern existed between average net price and minority status within a family income range. In the aggregate, independent students from all race/ethnicity groups paid a similar net price at public less-than-four-year schools; at four-year schools, blacks paid a lower net price than did whites; at proprietary schools, blacks and whites paid similar net prices while Asian and Hispanics paid higher net prices (Tables 12 - 16).

- Among students who had either never applied for aid or had refused aid, Asian and Hispanic students were more likely to have indicated that were averse to taking loans, either because they did not want to go into debt or increase their current level of debt (Table 17). Black students were somewhat less likely than whites to indicate that they were averse to taking loans.

TABLE 1

Personal Characteristics of Undergraduates by Race/Ethnicity

	ASIAN	BLACK	HISPANIC	WHITE
Percent Dependent	66.5	55.7	59.4	64.0
Percent Male	52.9	35.6	42.4	45.5
Percent Married	20.0	17.7	25.1	25.1
Percent With No Dependent Children	84.0	56.5	67.4	76.1
Income by Financial Status (Mean) Dependent Independent	 $33,768 14,770	 $22,213 15,227	 $27,017 16,532	 $42,990 21,861
Poverty Level by Financial Status (Percent) Below Poverty-Dependent Below Poverty-Independent	 24.8 47.8	 30.8 41.5	 24.7 36.3	 7.9 25.5

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 2

School Type and Control of Undergraduates by Race/Ethnicity

	ASIAN	BLACK	HISPANIC	WHITE
School Type and Control				
Public 4-Year	37.7	34.2	27.6	39.4
Private 4-Year	14.6	13.8	10.2	17.9
Public 2-Year	43.2	38.6	50.3	37.2
Private 2-Year	0.8	1.4	0.6	1.3
Proprietary	3.7	12.1	11.2	4.2
All	100.0	100.0	100.0	100.0

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 3

Percent of Undergraduates Attending Four-Year Schools by Region of Country and Race/Ethnicity

	ASIAN	BLACK	HISPANIC	WHITE
Region				
Northeast	83.9	56.6	67.6	67.1
Midwest	68.5	46.2	55.2	61.6
West	42.6	22.9	27.8	45.4
South	52.1	50.6	35.0	49.9
All	54.0	48.5	38.0	57.6

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 4

Percent Undergraduate Students Attending Four-year Institutions by Family Income and Race/Ethnicity

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	50.9	53.6	38.0	55.3
	20,000-35,000	70.7	61.1	42.6	61.6
	35,000-50,000	69.1	68.0	57.7	67.0
	50,000+	69.4	77.1	62.7	79.9
	ALL Dependent	62.4	59.0	45.0	67.0
Independent	Family Income				
	$0-10,000	41.3	38.0	29.2	45.1
	10,000-20,000	32.1	32.2	23.4	37.5
	20,000+	29.2	31.5	26.9	38.6
	ALL Independent	36.8	34.9	27.0	40.4
ALL Students		54.0	48.5	38.0	57.6

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 5

Percent Undergraduate Attending School Full-Time by Race/Ethnicity and Region

Region	ASIAN	BLACK	HISPANIC	WHITE
Northeast	76.1	68.5	66.4	71.5
Midwest	65.7	57.0	66.8	65.9
West	59.7	45.8	52.7	58.2
South	67.5	70.3	57.5	60.0
ALL	63.7	63.6	58.5	63.2

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 6

Percent Undergraduate Students Attending School Full-time by Family Income and Race/Ethnicity

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	67.1	77.5	68.4	73.3
	20,000-35,000	70.9	67.7	62.9	75.5
	35,000-50,000	67.2	72.4	73.6	75.6
	50,000+	76.2	78.5	62.0	81.0
	ALL Dependent	70.0	74.5	66.6	76.6
Independent	Family Income				
	$0-10,000	66.2	67.3	64.8	62.1
	10,000-20,000	29.6	36.3	39.2	39.3
	20,000+	28.0	25.5	25.5	22.7
	ALL Independent	50.7	49.4	45.8	38.7
ALL Students		63.7	63.6	58.5	63.2

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 7

Major Course of Study Among Four-Year Undergraduates by Race/Ethnicity

	ASIAN	BLACK	HISPANIC	WHITE
Category of Major				
Bus and Mgmt, Accounting, Banking	17.1	24.8	20.5	22.0
Marketing and Distribution	2.3	2.4	1.9	2.5
Computer and Information Sciences	9.3	5.9	3.4	3.6
Education	4.3	8.0	8.1	11.2
Engineering and Related	18.8	6.7	11.5	9.2
Allied Health, Practical Nursing	1.8	1.8	2.9	2.0
Health Sciences: Non-Prof., Nursing	5.1	8.5	4.3	6.2
Letters	1.3	1.7	2.4	2.8
Liberal/General Studies	5.5	4.7	5.8	4.4
Math/Science	14.3	5.9	7.2	7.3
Psychology	2.9	3.2	4.4	4.1
Social Sciences	6.2	6.3	7.3	6.5
Visual and Performing Arts	3.7	2.7	4.1	4.2
Other	7.5	17.4	16.2	14.1
TOTAL	100.0	100.0	100.0	100.0

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 8

Major Course of Study Among Two-Year Undergraduates by Race and Ethnicity

	RACE/ETHNICITY			
	ASIAN	BLACK	HISPANIC	WHITE
	PERCENT	PERCENT	PERCENT	PERCENT
Category of Major				
Bus and Mgmt, Accounting, Banking	19.3	22.0	23.1	21.6
Business (Administrative Support)	4.4	15.2	13.7	6.6
Computer and Information Sciences	8.2	8.4	6.7	6.6
Consumer, Personal and Misc. Services	2.1	4.3	3.5	2.7
Education	3.3	5.5	4.7	5.7
Engineering	9.4	4.7	3.5	4.4
Related Engineering Technology	2.9	3.4	5.3	4.4
Allied Health, Practical Nursing	4.0	5.4	4.5	5.3
Health Sciences: Non-Prof., Nursing	6.0	5.1	4.5	6.4
Liberal/General Studies	8.4	7.1	7.8	9.3
Protective Services	0.7	2.8	1.6	2.6
Mechanics and Repairers	9.5	3.4	4.8	4.1
Precision Production	2.7	1.6	1.6	2.1
Visual and Performing Arts	2.7	1.5	1.2	3.3
Other	16.6	9.5	13.4	15.0
TOTAL	100.0	100.0	100.0	100.0

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 9

Percent Full-time, Full-Year Undergraduates Receiving Financial Aid by Family Income and Race/Ethnicity

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	70.9	89.9	82.0	77.0
	20,000-35,000	44.7	78.8	52.1	65.5
	35,000-50,000	42.0	68.4	50.3	51.8
	50,000+	26.3	46.8	32.0	32.9
	ALL Dependent	49.3	80.6	62.3	54.5
Independent	Family Income				
	$0-10,000	82.8	94.9	94.0	88.3
	10,000-20,000	75.2	82.5	70.8	82.7
	20,000+	16.8	58.3	53.5	51.2
	ALL Independent	74.7	87.5	81.4	77.1
ALL Students		55.5	82.7	67.5	58

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 10

Percent Full-time, Full-Year Aided Undergraduates Receiving Grants by Family Income and Race/Ethnicity

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	84.5	96.6	92.2	89.4
	20,000-35,000	78.2	86.6	72.7	76.7
	35,000-50,000	74.3	60.7	63.2	63.3
	50,000+	59.8	88.5	82.2	59.4
	ALL Dependent	78.6	88.5	82.2	73.8
Independent	Family Income				
	$0-10,000	94.8	94.5	94.2	91.7
	10,000-20,000	76.0	83.6	80.4	80.2
	20,000+	76.3	58.3	57.6	56.3
	ALL Independent	92.7	89.1	87.1	82.8
ALL Students		83.2	88.7	83.8	76.1

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 11

Percent Full-time, Full-Year Aided Undergraduates Receiving Loans by Family Income and Race/Ethnicity

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	39.6	57.1	36.9	54.2
	20,000-35,000	53.3	62.9	56.6	60.2
	35,000-50,000	50.0	58.9	56.1	57.8
	50,000+	38.7	55.9	44.4	45.2
	ALL Dependent	43.8	58.7	45.0	55.3
Independent	Family Income				
	$0-10,000	40.3	59.8	50.6	64.5
	10,000-20,000	21.6	47.2	50.2	60.7
	20,000+	52.2	65.8	29.8	57.9
	ALL Independent	39.0	57.9	47.9	62.5
ALL Students		42.2	58.4	45.9	57.2

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 12

Average Net Price Paid by Full-Time, Full-Year Undergraduates at Public Two-Year Institutions by Race/Ethnicity and Family Income

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	$2,931	$2,204	$2,846	$2,667
	20,000-35,000	low-N	3,180	3,123	3,063
	35,000-50,000	low-N	low-N	low-N	3,223
	50,000+	low-N	low-N	low-N	3,316
	ALL Dependent	3,252	2,729	3,010	3,029
Independent	Family Income				
	$0-10,000	low-N	$5,410	$3,850	$4,723
	10,000-20,000	low-N	low-N	low-N	5,422
	20,000+	low-N	low-N	low-N	7,734
	ALL Independent	5,621	6,115	5,664	5,801
ALL Students		4,203	4,153	3,955	3,887

NOTE: Low-N indicates that fewer than 20 unweighted observations were in cell.

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 13

Average Net Price Paid by Full-Time, Full-Year Undergraduates at Private Two-Year Institutions by Race/Ethnicity and Family Income

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	low-N	$2,812	low-N	$2,867
	20,000-35,000	low-N	low-N	low-N	4,100
	35,000-50,000	low-N	low-N	low-N	4,339
	50,000+	low-N	low-N	low-N	6,316
	ALL Dependent	3,759	3,718	4,156	4,365
Independent	Family Income				
	$0-10,000	low-N	$6,317	low-N	$4,445
	10,000-20,000	low-N	low-N	low-N	5,477
	20,000+	low-N	low-N	low-N	7,223
	ALL Independent	low-N	7,501	low-N	5,351
ALL Students		4,404	5,125	4,991	4,599

NOTE: Low-N indicates that fewer than 20 unweighted observations were in cell.

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 14

Average Net Price Paid by Full-Time, Full-Year Undergraduates by Race/Ethnicity and Family Income at Public 4-Year Institutions

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	$3,001	$1,948	$2,270	$3,013
	20,000-35,000	4,845	2,876	3,527	3,950
	35,000-50,000	4,904	3,656	4,397	4,696
	50,000+	low-N	low-N	low-N	5,367
	ALL Dependent	4,436	2,657	3,360	4,426
Independent	Family Income				
	$0-10,000	$2,812	$2,801	$3,752	$3,267
	10,000-20,000	low-N	low-N	low-N	5,571
	20,000+	low-N	low-N	low-N	7,586
	ALL Independent	3,001	3,512	4,908	4,784
ALL Students		4,139	2,857	3,681	4,486

NOTE: Low-N indicates that fewer than 20 unweighted observations were in cell.

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 15

Average Net Price Paid by Full-Time, Full-Year Undergraduates at Private 4-Year Institutions by Race/Ethnicity and Family Income

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	$6,246	$2,523	$3,107	$4,020
	20,000-35,000	6,188	4,113	5,615	4,988
	35,000-50,000	8,002	5,211	6,672	6,815
	50,000+	11,193	7,030	10,402	9,495
	ALL Dependent	8,084	4,022	6,293	7,019
Independent	Family Income				
	$0-10,000	$4,317	$3,931	$5,470	$4,688
	10,000-20,000	low-N	7,523	low-N	6,059
	20,000+	low-N	low-N	low-N	9,051
	ALL Independent	6,344	5,268	6,909	6,242
ALL Students		7,877	4,326	6,405	6,930

NOTE: Low-N indicates that fewer than 20 unweighted observations were in cell.

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 16

Average Net Price Paid by Full-Time, Full-Year Undergraduates at Proprietary Institutions by Race/Ethnicity and Family Income

		ASIAN	BLACK	HISPANIC	WHITE
Dependent	Family Income				
	$0-20,000	low-N	$3,211	$3,929	$4,412
	20,000-35,000	low-N	3,999	5,594	5,115
	35,000-50,000	low-N	low-N	low-N	5,756
	50,000+	low-N	low-N	low-N	7,541
	ALL Dependent	5,801	3,600	4,682	5,313
Independent	Family Income				
	$0-10,000	low-N	$6,115	$8,261	$5,582
	10,000-20,000	low-N	8,511	low-N	7,658
	20,000+	low-N	8,660	low-N	9,461
	ALL Independent	9,760	6,859	9,012	6,997
ALL Students		7,661	5,406	6,444	6,067

NOTE: Low-N indicates that fewer than 20 unweighted observations were in cell.

SOURCE: 1987 National Postsecondary Student Aid Study

TABLE 17

Percent of Undergraduate Students Indicating Loan Aversion by Race/Ethnicity Among Those Who Had Never Applied for Aid or Had Refused Aid

	RACE/ETHNICITY			
	ASIAN	BLACK	HISPANIC	WHITE
Never applied for aid; did not want to go into debt	24.5	21.2	26.4	26.3
Refused aid when only loans offered; did not want to go into debt	12.3	7.2	11.3	5.5
Refused aid when only loans offered; did not want to go into more debt	12.3	6.9	10.0	4.6

SOURCE: 1987 National Postsecondary Student Aid Study

ANALYSIS AND HIGHLIGHTS

The report contains the following four papers presenting analyses of data from the 1987 National Postsecondary Student Aid Study (NPSAS):

- Paying for College: The Role of Financial Aid in Meeting the Costs of Undergraduate Education uses three different definitions of net price to look at what students from different economic backgrounds paid to attend college. Student aid was found to result in substantial reductions in the cost of postsecondary education for lower-income students, particularly in reducing the premium paid by lower-income students to attend private colleges and universities.

- Who Attends Proprietary Schools? Findings From NPSAS compares the characteristics of students attending proprietary schools to those attending similar programs in community colleges. When comparisons were made between public and private programs of similar duration, the characteristics of the students were very similar.

- The Distribution of Discretionary Financial Aid and Stafford Loans identifies the significant factors related to the awarding of institutional aid, Campus-Based aid, and Stafford loans. Need was found to be a major factor in awarding all three types of aid; institutions also gave strong preference in the distribution of their own funds to students with high grade point averages.

- Descriptive Tables of the Characteristics of Undergraduate Students by Race and Ethnicity presents data on personal characteristics, enrollment, and student aid by racial and ethnic categories. Among dependent students in the same income category, black and white students attended four-year institutions at the same rate, while Hispanics attended at a lower rate. Controlling for income, black students were the most likely and Asian students were the least likely to receive financial aid.